

Michigan Law Review

Volume 111 | Issue 7

2013

Standing's Expected Value

Jonathan Remy Nash
Emory University School of Law

Follow this and additional works at: <https://repository.law.umich.edu/mlr>



Part of the [Courts Commons](#), [Jurisprudence Commons](#), [Legal Remedies Commons](#), and the [Supreme Court of the United States Commons](#)

Recommended Citation

Jonathan R. Nash, *Standing's Expected Value*, 111 MICH. L. REV. 1283 (2013).
Available at: <https://repository.law.umich.edu/mlr/vol111/iss7/2>

This Article is brought to you for free and open access by the Michigan Law Review at University of Michigan Law School Scholarship Repository. It has been accepted for inclusion in Michigan Law Review by an authorized editor of University of Michigan Law School Scholarship Repository. For more information, please contact mlaw.repository@umich.edu.

STANDING'S EXPECTED VALUE

Jonathan Remy Nash*

This Article argues in favor of standing based on expected value of harm. Standing doctrine has been constructed in a way that is oblivious to the idea of expected value. If people have suffered a loss with a positive expected value, they have suffered an "injury in fact." The incorporation of expected value into standing doctrine casts doubt on many of the Supreme Court's decisions in which it denies standing because the relevant injury is too "speculative" or is not "likely" to be redressed by a decree in the plaintiff's favor. This Article addresses this shortcoming in standing jurisprudence by proposing a theory of expected value-based standing. It argues that the Constitution presents no obstacle to expected value-based standing, that the "injury-in-fact" test requires only a positive expected value, and that the prudential barrier to generalized grievances is the sole obstacle to expected value-based standing.

TABLE OF CONTENTS

INTRODUCTION	1284
I. IGNORING EXPECTED VALUE	1290
II. INCORPORATING EXPECTED VALUE INTO STANDING ANALYSIS.....	1304
A. <i>An Overview of Traditional Standing Jurisprudence</i>	1304
B. <i>The Proposal for Expected Value-Based Standing</i>	1306
C. <i>The Basic Consistency of Expected Value-Based Standing with Current Understandings of "Injury in Fact"</i>	1309
D. <i>The Implications of Expected Value-Based Standing</i>	1313
III. OBJECTIONS AND CRITICISMS	1316
A. <i>Are Courts Competent to Evaluate Expected Value-Based Standing?</i>	1316
B. <i>Does Expected Value-Based Standing Extend Standing Doctrine Too Far Beyond Its Existing Constitutional Moorings?</i>	1320
C. <i>Is Expected Value-Based Standing Desirable?</i>	1328
1. <i>Is Expected Value-Based Standing Consistent with the Goals of Standing Doctrine?</i>	1328

* Professor of Law, Emory University School of Law. This Article grew out of preliminary discussions I had with Cass Sunstein, to whom I am very grateful. Thanks are due as well to Karen Bradshaw, William Buzbee, Dan Cole, Michael Collins, Michael Kang, Kay Levine, Clarisa Long, Bradford Mank, Gillian Metzger, Lori Greendorfer Nash, Rafael Pardo, David Partlett, Julie Seaman, Jeffrey Staton, Alex Stein, Timothy Terrell, Liza Vertinsky, and Alexander Volokh for helpful suggestions. I benefited from comments I received at a faculty workshop at Emory University School of Law.

2. Does Expected Value-Based Standing Intolerably Enlarge the Set of Cases as to Which There Is Standing in Federal Court?	1333
CONCLUSION	1335

INTRODUCTION

Suppose that Jones has an investment worth \$10. Suppose that the government takes action that renders the investment worthless. Has Jones suffered an “injury in fact”? The answer is clear. Jones has lost an asset, and if the government takes that asset, it has injured Jones.¹

Now suppose that Jones has another investment. It is far more likely than not that the investment will turn out to be worthless. But there is a small chance—1 in 10,000—that the investment will be worth \$1 million. Suppose that the government takes action that renders the investment certainly worthless. Has Jones suffered an “injury in fact”? Under existing standing doctrine, the answer is fairly clear. Jones has lost an asset, the expected value of which is \$100, and if the government takes that investment, it has injured Jones.²

Now suppose that Smith faces a mortality risk of 1 in 100,000. Smith wants the Environmental Protection Agency (“EPA”) to eliminate that risk, which he believes it is legally required to do. The EPA refuses to act. Has Smith suffered an “injury in fact”? Under existing doctrine, the answer is not entirely clear; confusion over whether to classify the injury as procedural or substantive muddles the issue.³ But using monetary figures for the value of life the government itself has used, the expected value of a mortality risk of 1 in 100,000 is \$60.⁴

Whether a plaintiff can establish that he or she has suffered an “injury in fact” is critical to whether the plaintiff can pursue his or her legal action in federal court. Traditional Article III standing jurisprudence requires that a plaintiff demonstrate (1) “injury in fact,” (2) a causal link between that inju-

1. See *United States v. Students Challenging Regulatory Agency Procedures* (SCRAP), 412 U.S. 669, 689 n.14 (1973) (endorsing the view that “an identifiable trifle is enough for standing” (quoting Kenneth Culp Davis, *Standing: Taxpayers and Others*, 35 U. CHI. L. REV. 601, 613 (1968))); cf. *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419 (1982) (allowing potential government liability for a de minimis physical taking under the Fifth and Fourteenth Amendments).

2. See, e.g., *Toll Bros. v. Twp. of Readington*, 555 F.3d 131 (3d Cir. 2009) (upholding standing of real estate developer that held option to purchase a plot of real estate to challenge regulations that precluded development of the plot). But cf. *DLC Mgmt. Corp. v. Town of Hyde Park*, 163 F.3d 124, 130 (2d Cir. 1998) (finding that federal due process rights do not arise until a property interest vests such that “a property right will not be recognized as cognizable under the due process doctrine if the person claiming the right has a mere abstract need or desire for, or unilateral expectation of the claimed right”).

3. See *infra* text accompanying notes 54–71 (discussing how the Supreme Court has not resolved the question).

4. Cass R. Sunstein & Arden Rowell, *On Discounting Regulatory Benefits: Risk, Money, and Intergenerational Equity*, 74 U. CHI. L. REV. 171, 183 (2007).

ry and the conduct complained of, and (3) redressability.⁵ "Injury in fact" is a necessary antecedent to standing analysis—without injury, there is no causal link between the plaintiff and the challenged conduct, and there is nothing to redress.

My principal claim is simple: standing doctrine has been constructed in a way that is oblivious to the idea of expected value. If people have suffered a loss with a positive expected value, they have suffered an "injury in fact." It is unhelpful to say, as courts often have done, that an injury is "speculative" or "conjectural"⁶ when it has a positive expected value. A 1-in-10,000 chance of losing \$100,000 is the equivalent of a \$10 loss (assuming risk neutrality⁷), and a \$10 loss is an injury. A small risk of death is an injury in the sense that rational people would pay to eliminate the risk.⁸ Indeed, the federal government treats small risks of death as injuries calling for a regulatory response.⁹

These points cast doubt on many of the Supreme Court's decisions in which it denies standing on the ground that the relevant injury is too "speculative" or is not "likely" to be redressed by a decree in the plaintiff's favor.¹⁰ Speculative risks have a positive value; to suffer them is to suffer an "injury in fact." If victory by the plaintiff would give the plaintiff an asset with a positive expected value, then the plaintiff's injury would be redressed by a decree in his favor.

Indeed, notwithstanding the Court's traditional oblivious attitude toward it, the notion of expected value-based standing is consistent with the essence of existing standing doctrine. Extant doctrine implicitly embraces expected value by allowing standing in settings where the harm is far from certain, and indeed merely probabilistic. For example, standing in declaratory judgment actions necessarily assumes that relevant conduct will probably come to pass. And standing in overbreadth challenges—in which a speaker challenges a government speech restriction as possibly chilling the protected speech of parties not before the court—presumes both that the government

5. See, e.g., *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560–61 (1992). For an overview of current standing jurisprudence, see *infra* Section II.A.

6. See, e.g., *Linda R.S. v. Richard D.*, 410 U.S. 614, 618 (1973) (rejecting plaintiff's standing to challenge prosecutor's failure to file support proceedings against father of plaintiff's illegitimate child on the ground that "[t]he prospect that prosecution will, at least in the future, result in payment of support can, at best, be termed only speculative").

7. A person who is risk neutral is indifferent between a certain loss of a set amount and any risk of suffering a larger loss that has an expected value equal to the set amount of the comparable certain loss. In contrast, a risk-avoider might prefer a certain loss to a setting of risk where he or she runs the risk of losing more (but also possibly losing less), even though the expected values of the two scenarios are the same. See Rick Swedloff, *Uncompensated Torts*, 28 GA. ST. U. L. REV. 721, 777 (2012).

8. See W. KIP VISCUSI, *FATAL TRADEOFFS* 5 (1992).

9. See Cass R. Sunstein, *The Arithmetic of Arsenic*, 90 GEO. L.J. 2255, 2255 (2002).

10. See *infra* text accompanying notes 34–46 (discussing *Allen v. Wright*, 468 U.S. 737 (1984), *Simon v. E. Ky. Welfare Rights Org. (EKWRO)*, 426 U.S. 26 (1976), and *Linda R.S.*, 410 U.S. 614).

would prosecute actions that come near the margins of a statute and that others, as a result, likely would not engage in such actions in the first place.

What, then, might explain the pattern in the rest of existing standing law, which has had such difficulty in understanding a simple point about expected value? I suggest four possibilities. The first possibility is that courts are simply confused. They do not understand that a small risk of a significant harm is equivalent in value to a certain loss of a harm of a specified magnitude. The second possibility is that in refusing to hear cases in which plaintiffs complain about a loss of positive expected value, courts are relying on common law conceptions of injury—conceptions that poorly fit modern regulatory law. The third possibility, related to the second, is that some of the key cases are not about “injury in fact” at all. They are grounded instead in the (unarticulated) judgment that no relevant source of law should be taken to grant the plaintiff a cause of action. The fourth possibility is that some of the relevant decisions are based on judicial concerns over the generalized nature of the harm. In some cases, millions of people face a loss with a positive expected value. In such cases, there should be no problem with establishing an “injury in fact”; millions of people have been injured (in fact). If a problem exists, it is that widely generalized harms should not be judicially cognizable (at least when Congress has not explicitly said that they should be)—the problem is not that Article III bars suits with a less-than-certain likelihood of injury occurring.¹¹

There is no reason to say that Congress lacks the power to channel into federal court cases in which future harm is probabilistic. Nor does the injury-in-fact test bar courts from hearing such cases. If the plaintiff has lost a small chance to gain a large amount, the loss is equal to an amount that would unquestionably be a basis for standing. To be sure, the prudential barrier on generalized harms might apply in some cases. But, so long as the expected-value test is met, there is no reason to hold, as some courts have, that Article III poses an obstacle to standing for probabilistic harms.

My argument overcomes objections that the Supreme Court has suggested in settings of possible probabilistic standing—statements hinting at substantially certain injury (or even almost absolutely certain injury) as a prerequisite for standing.¹² It also provides a theoretical basis for the constitutionality of probabilistic standing. Finally, it provides a guide to clarify the existing, muddled lower court jurisprudence that generally recognizes probabilistic standing, though in different ways and without consistent theoretical underpinnings.¹³

An added benefit of my proposal is that it provides a solution to a conundrum that has flummoxed courts and commentators in cases of procedural harm: should the injury for standing purposes be considered the failure of the government to adhere to the proper procedure or rather some

11. See *infra* notes 131–132 and accompanying text.

12. See *infra* text accompanying notes 178–182 (discussing Supreme Court cases and then discussing how the proposal would affect the reasoning in those cases).

13. See *infra* text accompanying notes 183–184.

substantive result that arguably flows from that failure?¹⁴ The latter conception of injury bears a closer resemblance to a typical "injury in fact"—and perhaps even more importantly is the likely motivation for the lawsuit—but it is also usually not the case that some particular substantive result will necessarily result from a change in procedure. For example, the government's preparation of an environmental impact statement ("EIS") in deciding whether to undertake an action, as required by the National Environmental Policy Act ("NEPA")¹⁵ does not mean that the government will reach a different decision than it would have had it not prepared an EIS.¹⁶ Insofar as my proposal explicitly applies to harms that may or may not come to pass, it is compatible with an understanding of the injury as the possible change in substantive outcome.

Other commentators have advanced arguments on the topic of probabilistic standing. Professor Elliott relies on the notion of probabilistic harm to argue that large organizations challenging government action logically can—and should—have standing even when their individual members might not.¹⁷ Professor Hessick argues that, while the Supreme Court has consistently rejected probabilistic standing, Article III in fact poses no barrier to such standing; he suggests that courts ought to be free on prudential grounds to reject cases with probabilistic standing on a case-by-case basis.¹⁸ Professor Mank argues for risk-based standing in administrative law cases; he suggests empowering courts with the discretion to reject cases involving de minimis harm.¹⁹

14. See William W. Buzbee, *Standing and the Statutory Universe*, 11 DUKE ENVTL. L. & POL'Y F. 247, 254–60, 255 n.33 (2001) (comparing and contrasting the two inconsistent approaches and discussing Court opinions endorsing one view or the other); William A. Fletcher, *The Structure of Standing*, 98 YALE L.J. 221, 229–34 (1988); Bradford C. Mank, *Informational Standing After Summers*, 39 B.C. ENVTL. AFF. L. REV. 1, 27–44 (2012) (noting ongoing confusion over standing in cases involving procedural harm); Bruce Myers et al., *The Scope of Congressional Authority to Protect the Environment*, 40 ENVTL. L. REP. 10,977, 10,982–83 (2010) (statement by Professor Buzbee on how far Congress can go in extending standing); Gene R. Nichol, Jr., *Justice Scalia, Standing, and Public Law Litigation*, 42 DUKE L.J. 1141 (1993); Richard J. Pierce, Jr., *Lujan v. Defenders of Wildlife: Standing as a Judicially Imposed Limit on Legislative Power*, 42 DUKE L.J. 1170, 1188–95 (1993); Cass R. Sunstein, *Standing and the Privatization of Public Law*, 88 COLUM. L. REV. 1432 (1988) [hereinafter Sunstein, *Privatization of Public Law*]; Cass R. Sunstein, *What's Standing After Lujan? Of Citizen Suits, "Injuries," and Article III*, 91 MICH. L. REV. 163 (1992) [hereinafter Sunstein, *What's Standing After Lujan?*].

15. 42 U.S.C. § 4332 (2006).

16. See, e.g., *Strycker's Bay Neighborhood Council, Inc. v. Karlen*, 444 U.S. 223, 227 (1980) (per curiam); *Vt. Yankee Nuclear Power Corp. v. Natural Res. Def. Council, Inc.*, 435 U.S. 519, 558 (1978); *infra* note 231 (discussing Justice Breyer's take on the implications of this distinction for whether harm in an NEPA case will be irreparable for purposes of deciding whether to grant a permanent injunction).

17. See Heather Elliott, *The Functions of Standing*, 61 STAN. L. REV. 459, 511 (2008).

18. See F. Andrew Hessick, *Probabilistic Standing*, 106 NW. U. L. REV. 55, 101–02 (2012).

19. See Bradford Mank, *Standing and Statistical Persons: A Risk-Based Approach to Standing*, 36 ECOLOGY L.Q. 665, 737–41 (2009).

My approach differs substantially from these positions in a crucial respect. Professors Elliott, Hessick, and Mank all address settings where the probability of harm is comparatively low, making the issue of probabilistic standing prominent. Not surprisingly, all three commentators' central focus is cases in which a government action is challenged and, in particular, administrative law cases.²⁰ The approach I take is a much broader one. On the one hand, I recognize that a special rule may be necessary in cases where it is difficult to determine whether the expected value of harm will exceed a minimal amount—that is, in cases not just where the probability of harm is low but where the magnitude of harm is large (even catastrophic) and where the harm is irreversible.²¹ At the same time, I see no reason why cases with a low likelihood of harm should themselves constitute a special category. All expected value–based standing requires courts to do is to determine whether the expected value of harm would be a sufficient basis for standing, were it a “standalone” certain harm. Because it does not call on courts to determine the expected value of harm with precision, the mere fact that the likelihood of harm is low—or even subject to some debate²²—does not present a special problem. Also, while there is no doubt that my proposal has special purchase in the setting of administrative law,²³ it is not limited to administrative law cases.²⁴

Further, my approach grounds expected value–based standing in more general standing doctrine, whereas other commentators' suggestions seem more ad hoc and haphazard. For example, the approaches advanced by Professors Hessick and Mank and the approach I advocate would often yield similar outcomes—we all, it seems, would recognize constitutional authority for courts to hear administrative law cases where the harm alleged is probabilistic, and we all would recognize courts' prudential power not to hear such cases. But I, unlike the other commentators, see no reason why this result should inhere only in administrative law cases. Professor Mank expressly crafts his proposal in the setting of administrative law. Professor Hessick defends probabilistic standing's constitutional bona fides, helpfully separating the federal courts' equitable power to decline jurisdiction from

20. Professor Elliott's discussion of organizational standing finds its most natural home in the administrative law setting. See Elliott, *supra* note 17, at 483–86. Professor Mank explicitly locates his proposal in the administrative law arena. Mank, *supra* note 19, at 737. Professor Hessick explains that the “requirement of a sufficiently likely threat of injury frequently arises in challenges to administrative actions.” Hessick, *supra* note 18, at 63.

21. I have elsewhere advocated for precautionary-based standing in cases where the probability of harm is low but the harm in question would, if it transpired, be catastrophic and irreversible. See Jonathan Remy Nash, *Standing and the Precautionary Principle*, 108 COLUM. L. REV. 494, 502–04 (2008).

22. See *infra* note 134 (discussing the applicability to the proposal of preferences over lotteries of outcomes).

23. See *supra* notes 14–16 and accompanying text; *infra* notes 185–192 and accompanying text (explaining how the proposal would remove current confusion over standing in administrative law cases).

24. See *infra* text accompanying notes 178–182 (discussing cases outside the administrative law paradigm where expected value–based standing would apply).

the constitutional minimum for courts to have jurisdiction in the first place.²⁵ Still, both commentators understand cases of probabilistic harm as calling for special justification for federal court standing. In contrast, my approach applies equally to all cases where the likelihood of harm is less than certain, whether they are administrative or not, and whether that likelihood is especially small or otherwise. In addition, the discretionary power that Professors Hessick and Mank suggest courts enjoy seems to arise specifically in cases of probabilistic standing.²⁶ In contrast, the discretionary power that I understand courts to enjoy is no different from the power that they enjoy in all cases; specifically, I argue that the well-recognized freedom of courts to decline jurisdiction where a harm is generalized would apply in many cases of probabilistic harm.

Professor Elliott's suggestion for organizational standing in cases of probabilistic harm is similarly tied to that particular setting: she proposes that an organization have standing, even if none of its individual members would alone have standing, if the aggregate probable harm to all members is sufficient.²⁷ My proposal, in contrast, avoids the asymmetrical treatment of organizations and its members. It is also not limited to settings where individual members' harms are exceedingly small.

Beyond the question of when the various proposals may apply, my proposal also differs from those of the other commentators with respect to the consistency of the proposal with existing doctrine. While Professor Hessick does refute the notion that Article III poses a barrier to probabilistic standing, he also argues that the case law casts strong doubt on—if not outright rejects—probabilistic standing.²⁸ In contrast, because my approach reaches beyond explicit settings of probabilistic harm, I am able to explain how much of the Court's jurisprudence implicitly *embraces* the notion of expected value-based standing. My proposal for expected value-based standing emphasizes that the expected value of a harm looks very much like—and creates much the same incentives for litigants who suffer—harms that traditionally give rise to standing. To be sure, the proposal calls on courts to understand “injury in fact” to include not only injuries that will occur with certainty but also injuries that may occur with some positive probability. However, many standing doctrines already recognize (if only implicitly) this possibility.²⁹

Along similar lines, my proposal treats organizational standing consistently with existing doctrine, while Professor Elliott's proposal for organizational standing does not. While extant doctrine recognizes organizational standing

25. See Hessick, *supra* note 18, at 77–80.

26. See *id.* at 91 (calling for federal courts to “develop prudential rules limiting standing in cases alleging small risks of injury”); Mank, *supra* note 19, at 737–41 (devising novel federal court power to dismiss cases where probabilistic risk of serious injury does not exceed one in one million).

27. Elliott, *supra* note 17, at 511.

28. See Hessick, *supra* note 18, at 61–65.

29. See *infra* text accompanying notes 210–231.

when any member of the organization would have standing, Professor Elliott would accept organizational standing even where no individual member would have standing. In contrast, my proposal would find standing for an organizational member—and therefore also for an organization—where the expected value of the member's harm would, as a standalone harm, constitute an "injury in fact."

In Part I of this Article, I consider the question of probabilistic standing in existing jurisprudence. I survey three of the foundational Supreme Court "building blocks" of modern standing law and explain how the Court seems to have relied on the speculative nature of the injury to dismiss the cases, even though such reliance was unnecessary. I also discuss some recent Supreme Court cases that are more ambivalent about the propriety of probabilistic standing. I then explore the federal courts of appeals' reaction to, and treatment of, probabilistic standing. In Part II, I set out my proposal for expected value-based standing. I explain the limitations of the proposal and also explore its ramifications. In Part III, I consider objections and criticisms. I argue that the Constitution raises no barrier to expected value-based standing, the "injury-in-fact" test requires only a positive expected value, and the prudential barrier to generalized grievances is the sole obstacle to expected value-based standing.

I. IGNORING EXPECTED VALUE

The best way to show the Court's disregard of expected value is to explore three key cases in which the Court denied standing on the ground that plaintiffs could not demonstrate that their injury was likely to be redressed by a decree in their favor: *Linda R.S. v. Richard D.*,³⁰ *Simon v. Eastern Kentucky Welfare Rights Organization (EKWRO)*,³¹ and *Allen v. Wright*.³² In all of these cases, the Court said that it was "speculative" or "conjectural" that the decree would actually redress the injury.³³ But if the injury were properly characterized in expected-value terms, there would have been nothing speculative or conjectural about redressability.

The earliest of these cases is *Linda R.S. v. Richard D.*³⁴ In that case, the mother of an illegitimate child brought suit against the local prosecutor, complaining that he had failed to initiate support proceedings against the child's father. The plaintiff alleged that the state child-support statute was unconstitutional because it only required support of legitimate children. The Court denied standing. In the Court's view, the plaintiff lacked standing because she could not show that a criminal action would benefit her. The father of the child might, for example, simply go to jail. "The prospect that prose-

30. 410 U.S. 614 (1973).

31. 426 U.S. 26 (1976).

32. 468 U.S. 737 (1984).

33. See, e.g., *Allen*, 468 U.S. at 758.

34. *Linda R.S.*, 410 U.S. 614.

cution will, at least in the future, result in payment of support can, at best, be termed only speculative.”³⁵

The Court was correct to say that there was a less-than-100-percent chance that prosecution would result in payment of support. But, on the facts as they were alleged, the chance was far from zero. Suppose that a prosecution would create a 20 percent chance. Would that be valueless? Let us suppose that the annual value of child support would be \$10,000; let us also suppose that child support would be required for ten years. A 20 percent chance of \$100,000 is worth \$20,000 (putting issues of discounting to one side); if this is the value of the injury, why should it not count as an “injury in fact”? The plaintiff’s injury consisted, not of the absence of child support but of *the elimination of the incentive to provide child support that would have existed had the law required support of illegitimate children*.³⁶ Providing that support would have a positive expected value, and the plaintiff’s allegation was that the prosecutor’s inaction deprived her of that value.

Does this mean that *Linda R.S.* was wrongly decided? Not necessarily; judicial review of prosecutorial inaction is extremely unusual.³⁷ The Court could have acknowledged the existence of “injury in fact” and still have rejected the plaintiff’s claim on this separate ground.

The Court elaborated on the requirement of causation in its decision in *EKWRO*.³⁸ In that case, the Court denied standing to indigents who were challenging an Internal Revenue Service (“IRS”) ruling that decreased hospitals’ incentives to provide emergency medical services to the poor. The plaintiffs complained that they had been denied medical services as a result of this ruling. Ultimately, the Court denied standing because the plaintiffs could not show that a favorable decision from the Court would affect their own situation: “It is purely speculative whether the denials of service specified in the complaint fairly can be traced to petitioners’ ‘encouragement’ or instead result from decisions made by the hospitals without regard to the tax implications.”³⁹

The Court was plainly correct that the harm alleged was speculative. The plaintiffs could not show that they definitely would have received medical services had the IRS ruling not been adopted. But that conclusion does not mean that the plaintiffs’ injury would not have been addressed by a decree in their favor. Their injury consisted of a decreased probability of receiving medical assistance, and that decreased probability was certainly an injury. Suppose there were a 10 percent chance that the plaintiffs would have been

35. *Id.* at 614–18.

36. The description of the harm as such assumes that the support would have a positive expected value.

37. See, e.g., *Heckler v. Chaney*, 470 U.S. 821, 828 (1985) (holding that the decision of an administrative agency to exercise its discretion not to undertake certain enforcement actions is agency action not generally subject to judicial review under the Administrative Procedure Act).

38. *Simon v. E. Ky. Welfare Rights Org. (EKWRO)*, 426 U.S. 26 (1976).

39. *Id.* at 28, 32–33, 42–43.

able to receive emergency medical services if the IRS ruling created the incentives allegedly required by statute. Does the elimination of a 10 percent chance of receiving such services count as an "injury in fact"? If a 1-in-100,000 chance of mortality is worth \$60 (insofar as the government itself relies on a valuation of human life of approximately \$6 million),⁴⁰ surely a 10 percent chance of emergency medical services, for those who need them, should count as having positive expected value.

The third in the early line of cases that put probabilistic standing in doubt is *Allen v. Wright*.⁴¹ There, the parents of children attending schools undergoing desegregation challenged, on statutory and constitutional grounds, the IRS's failure to deny tax deductions to segregated private schools.⁴² The plaintiffs claimed that the tax deductions increased the funds available to segregated schools.⁴³ The consequence of the tax deductions—effectively lowering the cost of tuition at private, segregated schools—they argued, was an increase in the likelihood of white flight from the public schools, which in turn impeded the process of desegregation.⁴⁴ The Court held that the plaintiffs did not have standing because they could not show that a decree in their favor—which would directly affect only the private schools—would actually provide their children with access to more desegregated public schools.⁴⁵

Here too, the Court's assertion was correct as stated. But the plaintiffs' real injury consisted of the increased likelihood of white flight, stemming from the IRS's grant of tax deductions to racially segregated schools. That increased probability was hardly valueless. For parents whose children were undergoing a process of desegregation and who feared that the process would be defeated by government-encouraged white flight, a great deal depended on the IRS acting in accordance with its legal obligations. And if the injury consisted of the provision of certain incentives, then it would certainly have been redressed by a decree in the plaintiff's favor.

Note that in both *EKWRO* and *Allen*, the Court had available a narrower ground for dismissal: one could have justified the result in both cases on the well-established notion that one taxpayer should not ordinarily be permitted to litigate the tax liability of another.⁴⁶ Once again, then, the availability of expected value-based standing would not mean that either case was wrongly decided. The Court's expressions of doubt over the uncertainty of injury were unnecessary to the outcome.

What is most striking about all of these cases is their complete neglect of the concept of expected value. Indeed, the Court has at times seemed to

40. See *supra* text accompanying note 4.

41. 468 U.S. 737 (1984).

42. *Id.* at 739–40.

43. *Id.* at 745–46.

44. *Id.*

45. *Id.* at 752–53.

46. *Simon v. E. Ky. Welfare Rights Org. (EKWRO)*, 426 U.S. 26, 46 (1976) (Stewart, J., concurring); Sunstein, *Privatization of Public Law*, *supra* note 14, at 1454.

require the opposite—absolute certainty. In *City of Los Angeles v. Lyons*, plaintiff Lyons, having been subjected to a chokehold during an earlier arrest, sought to enjoin the Los Angeles Police Department from employing chokeholds to facilitate arrests in the absence of the threat of deadly force from the suspect.⁴⁷ The Court explained that, to establish standing, Lyons would have “to allege that he would have another encounter with the police,”⁴⁸ and also

make the incredible assertion either (1) that *all* police officers in Los Angeles *always* choke any citizen with whom they happen to have an encounter, whether for the purpose of arrest, issuing a citation, or for questioning, or (2) that the City ordered or authorized police officers to act in such manner.⁴⁹

The notion that constitutional standing would require such certainty finds no home in the language of Article III and also seems inconsistent with judicial interpretations that call for “actual or imminent”⁵⁰—but not certain—*injury*.⁵¹ And once again, even if positive expected value provided a basis for standing, *Younger* abstention⁵² provided another basis for the federal courts to decline to hear the case; indeed, the Court explicitly offered *Younger* abstention as an alternative ground for its holding.⁵³ This obviated the need for the Court to reach a questionable holding on standing.

Unlike the earlier cases, recent Court cases have sent mixed signals on probabilistic standing.⁵⁴ In *Massachusetts v. EPA*, the Court upheld the

47. 461 U.S. 95, 98 (1983).

48. *Lyons*, 461 U.S. at 105–06.

49. *Id.* at 106.

50. *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560 (1992) (internal quotation marks omitted).

51. See *infra* text accompanying notes 223–231 (discussing instances of courts granting standing to plaintiffs with uncertain or even impossible means of recovery). The oddity of calling for near certainty is confirmed by the Court’s inclusion of *Younger* abstention as a second justification for denying plaintiff access to federal court. See *infra* text accompanying notes 52–53. This inclusion suggests that the majority was not entirely comfortable with deciding the case solely on grounds of standing—especially since application of *Younger* abstention “assume[s]” that there is Article III standing. See *Lyons*, 461 U.S. at 111–12; see also *O’Shea v. Littleton*, 414 U.S. 488, 504–05 (1974) (Blackmun, J., concurring in part) (noting, in a very similar legal setting, that the conclusion that there was no standing made the majority’s further discussion of the availability of injunctive relief and *Younger* abstention “an advisory opinion that we are powerless to render”). The Court rarely includes alternative grounds for decision, especially where one ground is lack of standing and the other ground presupposes the existence of standing.

52. See *Younger v. Harris*, 401 U.S. 37, 41 (1971) (holding that federal courts shall not grant injunctions against pending state criminal proceedings, except in extenuating circumstances, even where a party questions the constitutionality of state law enforcement activities).

53. See *Lyons*, 461 U.S. at 111–13.

54. The plaintiffs in *Duke Power Co. v. Carolina Environmental Study Group, Inc.*, 438 U.S. 59 (1978), argued that they had standing in part because of the catastrophic damage they would suffer were there a meltdown at the nuclear power plant, the construction of which they were challenging. The Court expressly left open the validity of such an argument: “For

standing of the State of Massachusetts to challenge the EPA's failure to regulate greenhouse gas emissions from motor vehicle tailpipes.⁵⁵ It did so on the basis of what some have seen as probabilistic harm—harm resulting from the anticipated effects of global warming.⁵⁶ The Court went so far as to cite favorably some lower court cases that invoked probabilistic harm explicitly.⁵⁷ At the same time, some commentators assert that, in the end, the harm on which the Court relied—Massachusetts's proven loss of coastline on its sovereign lands—was garden-variety harm that would typically satisfy standing requirements.⁵⁸

The 2009 case of *Summers v. Earth Island Institute*⁵⁹ fired a clear warning shot at probabilistic standing. Indeed, some read the case to pronounce probabilistic standing's death knell.⁶⁰ Such pronouncements, however, are inaccurate. First, the holding in *Summers* applies specifically to organizational standing;⁶¹ the case can be read to have no impact whatsoever on broader questions of standing, including the viability of probabilistic stand-

purposes of the present inquiry, we need not determine whether all the putative injuries identified by the District Court, particularly those based on the possibility of a nuclear accident and the present apprehension generated by this future uncertainty, are sufficiently concrete to satisfy constitutional requirements." *Id.* at 73.

In 2007, the Court denied a petition for certiorari that asked it to resolve the validity of probabilistic standing. *Mallinckrodt Inc. v. Me. People's Alliance*, 552 U.S. 816 (2007); see Nash, *supra* note 21, at 521 n.122 (noting the open nature of the question); see also *The Supreme Court, 2006 Term—Leading Cases*, 121 HARV. L. REV. 185, 269–75 (2007) (criticizing the Court for failing to confront the issue in *Gonzales v. Carhart*, 550 U.S. 124 (2007)).

55. 549 U.S. 497, 526 (2007).

56. See, e.g., *Massachusetts*, 549 U.S. at 541–42 (Roberts, C.J., dissenting).

57. *Id.* at 525 n.23 (majority opinion) (citing *Mountain States Legal Found. v. Glickman*, 92 F.3d 1228, 1234 (D.C. Cir. 1996), and *Vill. of Elk Grove Vill. v. Evans*, 997 F.2d 328, 329 (7th Cir. 1993)). I discuss *Mountain States* and *Evans* below. See *infra* text accompanying notes 88–89 and 97–100, respectively.

58. See, e.g., Bradford Mank, *Should States Have Greater Standing Rights Than Ordinary Citizens?: Massachusetts v. EPA's New Standing Test for States*, 49 WM. & MARY L. REV. 1701, 1752–56 (2008); Nash, *supra* note 21, at 510 n.79.

59. 555 U.S. 488 (2009).

60. E.g., Karl S. Coplan, *Ideological Plaintiffs, Administrative Lawmaking, Standing, and the Petition Clause*, 61 ME. L. REV. 377, 412 (2009) (describing the Court in *Summers* as having "more emphatically" than before "rejected the possibility of using probabilistic harms to establish standing, at least in the case of alleged procedural injuries and on a record that did not establish a factual basis for the probabilistic analysis").

61. Accord Benjamin Ewing & Douglas A. Kysar, *Prods and Pleas: Limited Government in an Era of Unlimited Harm*, 121 YALE L.J. 350, 390 n.137 (2011) ("In . . . *Summers v. Earth Island Institute*, Justice Scalia rather decisively rejected the idea of probabilistic injury in the organizational standing context . . . Whether the skepticism toward probabilistic injury displayed by the *Summers* majority will be carried over beyond the organizational context is uncertain."); Bradford Mank, *Summers v. Earth Island Institute Rejects Probabilistic Standing, but a "Realistic Threat" of Harm Is a Better Standing Test*, 40 ENVTL. L. 89, 91 (2010) ("Justice Antonin Scalia's majority opinion rejected the concept of organizational standing based upon the statistical probability that some of an organization's members will likely be harmed in the near future by a defendant's allegedly illegal actions.").

ing. Second, a careful reading of the opinion suggests, if anything, general support for standing grounded in expected values.

The plaintiffs in *Summers* were environmental interest organizations seeking a nationwide injunction against the U.S. Forest Service's exemption of certain forest areas from onerous regulations.⁶² A five-Justice majority found standing to be lacking.⁶³

The facts in *Summers* introduced (if implicitly) two aspects of uncertainty to the standing analysis. The first aspect was whether someone who alleged concrete intent to visit a forest area that was to be affected by the challenged exemption would have standing. The Court broke no new ground here. Consistent with its holding in *Lujan v. Defenders of Wildlife*,⁶⁴ the Court indicated that such an allegation *would* be sufficient to support standing.⁶⁵

The second aspect of uncertainty raised by *Summers* was the notion of multiple claimants, where perhaps only one of those claimants satisfied the minimal traditional standing requirements.⁶⁶ To elucidate the Court's treatment of this aspect of uncertainty, let us simplify—and add some concreteness to—the facts in *Summers*. Assume (1) that there were twenty-five national forests that could be affected by the challenged exemption, and (2) that there was a single plaintiff organization consisting of twenty-five members, each of whom professed a concrete intent to visit each one of the forests in the near future. The *Summers* Court held that there was no standing in such situations, rejecting what it called “a hitherto unheard-of test for organizational standing: whether, accepting the organization's self-description of the activities of its members, there is a statistical probability that some of those members are threatened with concrete injury.”⁶⁷

Importantly, however, the Court had two ways to reach its ultimate conclusion. First, it could have said that, even if the twenty-five members provided affidavits showing concrete intent to visit a forest—such that at least one member was sure to suffer concrete harm from the absence of the nationwide injunction (under the normal standard for injury the Court continued to recognize in *Summers*)—there would still not be standing because the precise identity of the member(s) who would be harmed could not be ascertained. But the Court did not take this option. Instead, it took a second course, reasoning rhetorically: “Without individual affidavits, how is

62. In particular, the organizations sought to bar enforcement of “regulations that exempt small fire-rehabilitation and timber-salvage projects from the notice, comment, and appeal process used by the Forest Service.” *Summers*, 555 U.S. at 490.

63. *Id.* at 500.

64. 504 U.S. 555, 564 (1992) (indicating that although allegations consisting of “‘some day’ intentions—without any description of concrete plans”—are insufficient to establish standing, concrete assertions may be sufficient).

65. See *Summers*, 555 U.S. at 495–96 (finding, consistent with *Lujan*, allegation of a mere “vague desire” to visit an affected forest—as opposed to “firm intentions or concrete plans”—insufficient to support standing).

66. *Id.* at 493–97.

67. *Id.* at 497.

the court to assure itself that” the organization in question has enough members so as to ensure, with some statistical probability, that at least one of its members is facing concrete harm?⁶⁸ The implication of this logic is that the first option remained open—i.e., had the organization provided affidavits for the twenty-five members, there would have been standing.⁶⁹ Thus, mere uncertainty as to the identity of the plaintiff who will be harmed⁷⁰ is not sufficient to defeat standing. Put another way, the problem in *Summers* was not that expected-value analysis was inconsistent with standing (since a one-in-twenty-five chance of concrete harm among twenty-five claimants would be sufficient to yield standing), but only that the plaintiff organizations failed to provide adequate proof to support the expected-value analysis necessary to establish standing. In the end, then, while *Summers* limits organizational standing grounded in expected value, it seems also to endorse the possibility that expected value could justify standing for groups of plaintiffs that provide proof sufficient to meet the ordinary standing requirements.⁷¹

In its 2010 decision in *Monsanto Co. v. Geertson Seed Farms*, the Court, by a seven–one vote, endorsed the view that a probabilistic harm can be sufficient to provide standing.⁷² The Court held that growers of alfalfa that was not genetically modified had standing to seek injunctive relief against a government agency that would have deregulated genetically-modified alfalfa. The Court reasoned that “[a] substantial risk” that the conventional alfalfa farmers’ crops would be contaminated by modified genes from deregulated crops was “sufficiently concrete” to constitute a cognizable injury.⁷³

Most recently, in *Clapper v. Amnesty International USA*, the Court, in a five–four decision, found that lawyers, journalists, and human rights advocates did not have standing to challenge the application of a new provision

68. *Id.* at 499.

69. One way to understand, if not to justify, this distinction is to realize that the government may actually enjoy a benefit from being able to choose regulatory action that comparatively few people are likely to have standing to challenge. Were the *Summers* lawsuit allowed to proceed on the basis of organizational standing, the government would lose this benefit, and almost all government action could be challenged once a large enough interest group was assembled. Cf. Michelle Fon Anne Lee, Note, *Surviving Summers*, 37 *ECOLOGY L.Q.* 381, 407–08 (2010) (noting that *Summers* “was probabilistic only in the sense that plaintiffs did not know, at this early stage, what the agency was planning to do,” and that, “[o]nce the agency implemented its regulations, the identity of the injured persons would be knowable”). On the other hand, if individuals actually submit affidavits supporting standing with respect to all possible applications of a regulation, the case for standing is much clearer. Since the government can anticipate a challenge no matter what it does, there seems less reason not to allow a lawsuit challenging the action to proceed earlier.

70. See *id.* (categorizing *Summers* as an “uncertain plaintiff” case).

71. Cf. *id.* at 408–09 (acceding that “[t]here is some chance . . . that some uncertain plaintiff cases, more ‘truly probabilistic’ than *Summers*”—specifically cases where, after agency action, the fact that one plaintiff will be harmed is statistically certain but the identity of that plaintiff remains unknown—“might survive *Summers*,” but also observing that “the likelihood that the Court would allow such cases to move forward seems low”).

72. 130 S. Ct. 2743 (2010).

73. *Monsanto*, 130 S. Ct. at 2754–55.

of the Foreign Intelligence Surveillance Act ("FISA") enacted by the FISA Amendments Act of 2008.⁷⁴ The Court dismissed the plaintiffs' argument in favor of standing—that the likely surveillance of their "foreign contacts" would intercept their communication with those contacts⁷⁵—as "too speculative" and "not certainly impending."⁷⁶ The Court laid out a five-part causal chain, each link of which would have to be met for the claimed harm to come about, but also which itself would be, in the Court's view, overly speculative.⁷⁷

In spite of the seeming hostility of the *Clapper* holding to less-than-certain harm constituting injury for standing purposes, there is much in the *Clapper* opinion that suggests that standing based on probabilities is far from foreclosed, and indeed that the holding in *Clapper* may be tied to the unique nature of the circumstances raised by the case. First, the majority opinion agrees with the dissent that certain injury is *not* a requirement for standing.⁷⁸ Perhaps, then, the real problem in *Clapper* was the plaintiffs' inability—or failure—to establish that the probability of harm went beyond speculation⁷⁹ so as to become more than *de minimis*.

Second, the *Clapper* Court cited approvingly prior decisions where "we have found standing based on a 'substantial risk' that the harm will occur."⁸⁰ The Court even suggested that "the 'substantial risk' standard" may be "distinct from the 'clearly impending' requirement."⁸¹ If that is so, then a substantial risk of harm might provide a separate pathway to standing.

Third, the *Clapper* Court went to great lengths to highlight special circumstances—present in the *Clapper* case—where the Court has been historically less likely to find standing to sue. The Court noted that it has

74. 133 S. Ct. 1138 (2013). The challenged provision is now codified as section 702 of the Foreign Intelligence Surveillance Act of 1978, 50 U.S.C. § 1881a (Supp. V 2011).

75. *Clapper*, 133 S. Ct. at 1147. The plaintiffs also argued that the likelihood of future surveillance compelled them to change their behavior in the present in costly ways—such as having to conduct interviews abroad in-person rather than by telephone or email—thus imposing an economic harm today. *Id.* at 1150–51. The Court rejected this argument as well, explaining that plaintiffs "cannot manufacture standing merely by inflicting harm on themselves based on their fears of hypothetical future harm that is not certainly impending." *Id.* at 1151. *But cf. id.* at 1151 n.6 (finding plaintiffs' allegations wanting in that they cited to "only one specific instance of travel"—"domestic travel," for an attorney to meet with other attorneys, that "had but a tenuous connection" to the legal allegations in the case).

76. *Id.* at 1143.

77. *Id.* at 1148–50. The Court colored similar causal chains as speculative in *Allen v. Wright*, 468 U.S. 737, 758–59 (1984), and *Summers v. Earth Island Institute*, 555 U.S. 488, 496 (2009).

78. *Clapper*, 133 S. Ct. at 1150 n.5; *accord id.* at 1160 (Breyer, J., dissenting). The dissent hammered home the point that the Court has routinely found standing based on injuries that are not certain to occur. *See id.* at 1160–64.

79. *See id.* at 1148–50 (majority opinion) (laying out a chain of speculative links that led to the alleged injury).

80. *Id.* at 1150 n.5 (citing, *inter alia*, *Monsanto Co. v. Geertson Seed Farms*, 130 S. Ct. 2743 (2010)).

81. *Id.*

“often found a lack of standing in cases in which the Judiciary has been requested to review actions of the political branches in the fields of intelligence gathering and foreign affairs.”⁸² In addition, in noting the speculation inherent in assessing whether the Foreign Intelligence Surveillance Court (a court created by FISA) would rule on a government application for approval of a particular surveillance, the Court observed that it has “been reluctant to endorse standing theories that require guesswork as to how independent decisionmakers will exercise their judgment.”⁸³ These statements suggest that, were a case with similar probabilities to arise outside the context of intelligence gathering and foreign affairs, and where the behavior of an independent decisionmaker were not implicated, there might in fact be standing. Put another way, perhaps the holding in *Clapper* should at least be somewhat limited to its facts.

Finally, yet another reason to read the *Clapper* Court’s holding on “injury in fact” narrowly is the fact that the Court offered an alternative basis for finding an absence of standing: the fact that the government may seek approval for foreign surveillance outside the provisions of the FISA Amendments Act meant that, “[e]ven if [plaintiffs] could demonstrate that their foreign contacts will imminently be targeted—indeed, even if they could show that interception of their own communications will imminently occur—they . . . cannot satisfy the ‘fairly traceable’ requirement.”⁸⁴

The lower courts have generally been more receptive to—but have also greatly struggled with—issues of probabilistic harm and standing.⁸⁵ Some cases reveal different panels of the same court endorsing distinct, and arguably inconsistent, approaches to probabilistic standing. A survey of circuit court decisions reveals no fewer than four approaches in cases of probabilistic standing. Some courts find standing satisfied where the plaintiff can show that he or she is subject to an enhanced risk of harm. Another approach calls for a substantial risk of injury before standing will be found. A third approach calls for a substantial probability of injury and also that the marginal increase in risk itself be substantial. Finally, a fourth approach seems categorically to reject probabilistic standing. In some sense, only the last approach is fundamentally inconsistent with probabilistic standing and, therefore, with an expected value-based approach. The second and third approaches, however, are rather inconsistent with having standing turn on expected value. Moreover, while the first approach is the most compatible with an expected value-based approach—indeed, some opinions are suggestive of expected value calculations—courts that adopt the “enhanced risk”

82. *Id.* at 1147.

83. *Id.* at 1150.

84. *Id.* at 1149.

85. For detailed surveys of the case law, see Robin Kundis Craig, *Removing “the Cloak of a Standing Inquiry”: Pollution Regulation, Public Health, and Private Risk in the Injury-in-Fact Analysis*, 29 CARDOZO L. REV. 149, 188–205 (2007), and Mank, *supra* note 19, at 684–715.

approach nonetheless never go so far as to adopt explicitly the expected value of the harm as the touchstone of standing.

The first approach, which several circuit courts have adopted, is to conclude that standing exists where an enhanced risk can be shown, even if the injury was probabilistic and in that sense speculative. The D.C. Circuit has adhered to such an approach in several cases. In *International Brotherhood of Teamsters v. Pena*,⁸⁶ the court considered a union challenge to a federal regulation implementing an accord between the United States and Mexico under which the two nations recognized one another's drivers' licenses. No American driver could show, except speculatively, that the grant of permission would produce harm or injury to person or property. At most, American drivers could allege that they faced an increased risk of harm, one with positive expected value. Apparently relying on the notion that union drivers would probabilistically be on the road with drivers with Mexican licenses—and that that would probabilistically endanger the union drivers to the extent that the drivers with Mexican licenses were less safe—the court summarily concluded that “the union has adequately alleged a concrete injury.”⁸⁷

The D.C. Circuit also emphasized the importance of “enhanced risk” in *Mountain States Legal Foundation v. Glickman*.⁸⁸ There, plaintiffs challenged the government's decision not to allow greater timber harvesting in a national forest. In allowing standing, the court explained, “[W]e do not understand the customary rejection of ‘speculative’ causal links . . . as ruling out all probabilistic injuries. The more drastic the injury that government action makes more likely, the lesser the increment in probability necessary to establish standing.”⁸⁹

The Second Circuit employed an “enhanced risk” standard for standing in *Baur v. Veneman*,⁹⁰ where a plaintiff—as a citizen and consumer of food—challenged the failure of the Department of Agriculture to ban the use of downed livestock⁹¹ for human consumption. The government asserted that the plaintiff could not show an “injury in fact.” Though it agreed that a risk could count as such an injury under some circumstances, the court argued that the risk advanced by the plaintiff was merely speculative and for that reason was not sufficient.⁹² Couching its ruling narrowly, the court responded that “enhanced risk . . . [i]n the specific context of food and drug safety suits . . . [is] cognizable for standing purposes, where the plaintiff

86. 17 F.3d 1478, 1480–81, 1482–84 (D.C. Cir. 1994).

87. See *Teamsters*, 17 F.3d at 1483. The court also relied on a probabilistic analysis to conclude that union members' injuries exceeded injuries suffered by the driving public at large, in that “the union's members spend far more time on the roads than most other Americans,” so that “[r]eductions in highway safety would cause more harm to them than to typical members of the public at large.” *Id.*

88. 92 F.3d 1228 (D.C. Cir. 1996).

89. *Mountain States Legal Found.*, 92 F.3d at 1234 (internal citation omitted).

90. 352 F.3d 625 (2d Cir. 2003).

91. “‘Downed’ is an industry term used to describe animals that collapse for unknown reasons and are too ill to walk or stand prior to slaughter.” *Id.* at 628.

92. *Baur*, 352 F.3d at 632–33.

alleges exposure to potentially harmful products.”⁹³ As the court further elucidated, “[W]e can discern no reason to distinguish between uncontested exposure to a potentially harmful substance and potential exposure to an undisputedly dangerous contaminant for standing purposes.”⁹⁴ The court added that an exposure to increased risk must be based on a “credible threat of harm,”⁹⁵ not mere speculation. Expected value played an unmistakable role in the court’s analysis: “[T]he probability of harm which a plaintiff must demonstrate in order to allege a cognizable injury-in-fact logically varies with the severity of the probable harm.”⁹⁶ Insofar as expected value is the product of probability and magnitude of harm, the court recognized that an increase in one factor would compensate for a decrease in the other factor.

The Seventh Circuit also endorsed an “enhanced risk” approach in *Village of Elk Grove Village v. Evans*.⁹⁷ There, a municipality sought to enjoin the Army Corps of Engineers from constructing radio towers in the floodplain of a nearby creek. The municipality alleged that the existence of the radio towers would increase the risk of flooding, as well as flood-related expenses for sandbags and overtime salaries for rescue workers.⁹⁸ Though the municipality was “flood-prone,” the court still found that the injury was “probabilistic.”⁹⁹ The court concluded, “[E]ven a small probability of injury is sufficient to create a case or controversy—to take a suit out of the category of the hypothetical—provided of course that the relief sought would, if granted, reduce the probability.”¹⁰⁰

The Ninth Circuit endorsed an “enhanced risk” approach in *Ecological Rights Foundation v. Pacific Lumber Co.*, where two environmental rights organizations sued a defendant for Clean Water Act violations.¹⁰¹ In allowing standing, the court observed that “[t]he organizations’ members avoid some activities they would otherwise enjoy in and around Yager Creek . . . because they fear that runoff from [defendant’s] two facilities is damaging the creek and its wildlife, and enjoy other activities less than they would if there were no such runoff.”¹⁰² The court dismissed the notion that the plaintiffs had to show that the waters in question were in fact polluted: “It is not necessary for a plaintiff challenging violations of rules designed to reduce

93. *Id.* at 634.

94. *Id.* at 634 n.8.

95. *Id.* at 637 (internal quotation marks omitted).

96. *Id.*

97. 997 F.2d 328 (7th Cir. 1993).

98. *Evans*, 997 F.2d at 329.

99. *Id.*

100. *Id.*

101. See 230 F.3d 1141, 1151–52 (9th Cir. 2000).

102. *Ecological Rights Found.*, 230 F.3d at 1144. The court proceeded to describe the particular allegations of two members of the plaintiff organizations. See *id.* at 1144–45, 1152.

the risk of pollution to show the presence of *actual* pollution in order to obtain standing.”¹⁰³

Other circuit court panels considering standing—including panels of the D.C. and First Circuits—have required that there be a substantial probability that the plaintiff will be injured (although the courts neither elaborate on exactly what makes a probability “substantial,” nor do they seem to hold plaintiffs to an especially high standard). *Natural Resources Defense Council v. EPA* involved an environmental organization’s claim that the EPA’s approval of certain ozone-depleting substances violated an international regime governing the use of such substances.¹⁰⁴ The D.C. Circuit observed: “We . . . generally require that petitioners demonstrate a ‘substantial probability’ that they will be injured.”¹⁰⁵ Applying that standard,¹⁰⁶ the court noted that “[o]ne may infer from the statistical analysis that two to four of [plaintiff’s] nearly half a million members will develop cancer as a result of the rule,”¹⁰⁷ and concluded that “this risk is sufficient to support standing.”¹⁰⁸ Left unclear was why, on the court’s logic, a less than 1-in-100,000 chance of contracting cancer would be sufficiently substantial to support standing.

In *Maine People’s Alliance v. Mallinckrodt, Inc.*,¹⁰⁹ environmental organizations sought an injunction against a corporation for compliance with the Resource Conservation and Recovery Act. The First Circuit explained its approach to standing: “To establish an injury in fact based on a probabilistic harm, a plaintiff must show that there is a substantial probability that harm will occur.”¹¹⁰ The court endorsed the lower court’s factual conclusion that that burden had been met but without indicating what “a substantial probability” might mean.

In at least one case, a circuit court has required for standing not only that there be a substantial probability of injury, but also that the marginal increase in risk itself be substantial. In *Public Citizen, Inc. v. National*

103. *Id.* at 1152 n.12.

104. 464 F.3d 1 (D.C. Cir. 2006).

105. *Natural Res. Def. Council*, 464 F.3d at 6 (quoting *La. Envtl. Action Network v. EPA*, 172 F.3d 65, 68 (D.C. Cir. 1999)).

106. In an earlier opinion, the court had considered the likely harm—“more than 10 deaths, more than 2,000 nonfatal skin cancer cases, and more than 700 cataract cases”—on an annualized basis and found “the annualized risk posed to NRDC members to be trivial.” *Id.* (quoting *Natural Res. Def. Council v. EPA*, 440 F.3d 476 (D.C. Cir. 2006)). The court observed that, with respect to that earlier holding, “[t]he parties vigorously dispute whether we were correct to hold as a quantitative matter that [plaintiff’s] alleged injury was trivial or whether, in [plaintiff’s] words, any ‘scientifically demonstrable increase in the threat of death or serious illness’ . . . is sufficient for standing.” *Id.* The court further noted that the “question has given rise to a conflict among the circuits.” *Id.* On rehearing, the court explained that it didn’t have to decide the question since EPA’s expert, on whose model both sides relied, had informed the court that viewing the risk in annualized terms was not practical. *Id.* at 7.

107. *Id.*

108. *Id.*

109. 471 F.3d 277 (1st Cir. 2006).

110. *Mallinckrodt*, 471 F.3d at 284.

Highway Traffic Safety Administration,¹¹¹ a consumer organization (among others) challenged as too stringent the government's choice of minimum tire pressure in new automobiles. A D.C. Circuit panel reversed the district court's determination that the consumer organization lacked standing, explaining as follows: "We have allowed standing when there was at least *both* (i) a *substantially* increased risk of harm and (ii) a *substantial* probability of harm with that increase taken into account."¹¹² The court postponed its decision until supplemental filings could allow it to determine whether this standard was met.¹¹³ On appeal after remand, the court concluded that the organization lacked standing.¹¹⁴ While it continued to apply the same legal standard, the court suggested that the issue of whether probabilistic standing was ever appropriate should be taken up by the court en banc.¹¹⁵

A final approach simply rejects the idea of probabilistic standing. In *Shain v. Venema*, plaintiffs challenged the Department of Agriculture's construction of sewage lagoon ponds in a flood plain, alleging that the additional displacement of water resulting from the embankments surrounding the ponds would adversely affect the plaintiffs' property.¹¹⁶ Concluding that the risk faced was that of a "100-year flood," the Eighth Circuit held that standing was lacking. First, the court reasoned that "[i]f the possibility of a 100-year flood is remote in the abstract, the possibility the flood will occur while [plaintiffs] own or occupy the land becomes a matter of sheer speculation."¹¹⁷ Second, the court found plaintiffs' allegations "vague and conclusory" in that they "[l]eft to conjecture . . . the questions whether the marginal rise in the water level will move in the direction of the plaintiffs' land, reach the property, and cause cognizable harm which would not have occurred absent the lagoons."¹¹⁸ Third, insofar as "the 100-year label . . . designates lands most immune from flood damage . . . then as [a] practical matter, any plaintiff who conceivably could be harmed by a defendant's

111. 489 F.3d 1279 (D.C. Cir. 2007).

112. *Pub. Citizen*, 489 F.3d at 1295. The *Public Citizen* panel expressed some dissatisfaction with this standard, even going so far as to state that it would not have found standing "[w]ere we deciding this case based solely on the Supreme Court's precedents." *Id.* at 1296. But, the court explained, it was bound by circuit precedent. *Id.*

The cases the court identified as generating the binding precedent were *Mountain States Legal Foundation v. Glickman*, 92 F.3d 1228 (D.C. Cir. 1996) (discussed *supra* in text accompanying notes 88–89), and *Natural Res. Def. Council v. EPA*, 464 F.3d 1 (D.C. Cir. 2006) (discussed *supra* in text accompanying notes 104–108). This reliance is curious. Neither of these cases established the standard enunciated by the court in *Public Citizen*.

113. *Pub. Citizen*, 489 F.3d at 1296, 1298.

114. *Pub. Citizen, Inc. v. Nat'l Highway Traffic Safety Admin.*, 513 F.3d 234 (D.C. Cir. 2008) (rejecting *Public Citizen*'s standing application after supplemental briefing).

115. *Id.* at 241.

116. *Shain v. Veneman*, 376 F.3d 815 (8th Cir. 2004).

117. *Id.* at 818 ("Indeed, one wonders whether any of the parties (or the court) in this case will be alive the next time a 100-year flood occurs upon the land.").

118. *Id.*

conduct would possess standing to sue in federal court.”¹¹⁹ The *Shain* court thus seems to have rejected probabilistic standing. It bears noting, however, that the court stated that “the jurisprudence of our sister circuits is consistent with our holding in this case.”¹²⁰

As a whole, the courts of appeals’ approaches are broadly consistent with probabilistic standing; the framework employed by most courts would seem to allow for probabilistic standing, at least in some cases, with the Eighth Circuit’s approach in *Shain* seeming most at odds with probabilistic standing.

Consistency with expected value-based standing (as opposed to probabilistic standing) is harder to ascertain. Clearly, expected value-based standing does not call for a “substantial risk of injury”: insofar as expected value of harm is the product of the probability and magnitude of harm, a less substantial harm can be offset by a harm of greater magnitude.¹²¹ The same is true of a requirement that the marginal increase in risk be substantial.

An “enhanced risk” approach is most compatible with an expected value-based approach. Indeed, some of the “enhanced risk” cases at times use language that alludes to expected value.¹²² Still, none of these cases explicitly endorse expected value as the basis on which standing should hinge.

* * *

In sum, expected value has yet to find a clear home in judicial expositions of standing. The Supreme Court has not been hospitable to probabilistic standing in general, let alone notions of expected value. The lower courts have been more open to probabilistic standing but, in the absence of guidance from the high court, have been inconsistent in the tests they have applied. Moreover, to whatever extent the lower courts have

119. *Id.* The question of whether the harm alleged is generalizable is a separate one. As I discuss below, under my proposal for expected value-based standing, courts would remain free to reject assertions of generalized harm on prudential grounds. See *infra* text accompanying notes 141–142.

120. *Shain*, 376 F.3d at 819. The court distinguished the facts before it from those in *Mountain States Legal Foundation v. Glickman*, 92 F.3d 1228 (D.C. Cir. 1996) (which I discuss *supra* in text accompanying notes 88–89). The court explained this distinction as follows:

There, the defendant’s conduct directly and measurably increased the chances a fire would start; the defendant’s conduct was not merely an intervening factor that could aggravate an independently occurring natural disaster. For this case to become truly analogous to *Glickman*, the lagoons would have to increase the probability of a 100-year flood itself.

Shain, 376 F.3d at 819. The court also avoided direct conflict with the Seventh Circuit’s endorsement of probabilistic standing in *Village of Elk Grove Village v. Evans*, 997 F.2d 328 (7th Cir. 1993) (discussed *supra* in text accompanying notes 97–100), dismissing the court’s analysis there as “dicta.” *Shain*, 376 F.3d at 819.

121. This is less important to the extent that courts applying this standard do not in practice impose a hurdle different from an “enhanced risk” approach. See *infra* text accompanying note 122.

122. See, e.g., *supra* text accompanying notes 107–108.

acquiesced to some version of probabilistic standing, they have not taken the next step of explicitly recognizing how expected value can, and should, undergird probabilistic standing. In the next Part, I advance a proposal for incorporating expected value into standing that would resolve this confusion.

II. INCORPORATING EXPECTED VALUE INTO STANDING ANALYSIS

In this Part, I explore the idea of probabilistic standing, with particular reference to expected value. I first set out the essentials of traditional standing analysis, with a focus on the prong that drives much of the analysis and on which expected value-based standing turns—the “injury in fact” prong. I then explicate my proposal for expected value-based standing. I also offer some factors that I expect will limit the scope of the proposal. Expected value-based standing, as I propose it, would be broadly consistent with present understandings of “injury in fact.” I also explain why, if that is so, some courts have been reluctant to embrace probabilistic standing. Last, I describe how expected value-based standing might affect the holding and reasoning of cases previously decided by the Supreme Court.

A. An Overview of Traditional Standing Jurisprudence

The Supreme Court has made clear that constitutional standing requires three showings by a plaintiff: (1) “injury in fact,” (2) a causal link between that injury and the conduct complained of, and (3) redressability.¹²³ The “injury in fact” prong demands that the plaintiff show that she has suffered “an invasion of a legally protected interest which is (a) concrete and particularized and (b) actual or imminent, not conjectural or hypothetical.”¹²⁴ Causation calls on the plaintiff to establish that the injury is the result of action on the part of the defendant that is subject to challenge and not the result of independent action on the part of a party not before the court.¹²⁵ Finally, the “redressability” prong requires the plaintiff to show that it is “likely, as opposed to merely speculative, that the injury will be redressed by a favorable decision.”¹²⁶

The definition of injury drives the standing analysis. In a case where the likelihood that harm may be experienced is probabilistic, the description of the precise injury can be subject to manipulation. Assume, for example, that a plaintiff who was denied admission to a school challenges the school’s use of racial group quotas as part of its admissions criteria. Is the plaintiff’s injury (1) the actual denial of admission (an injury he or she might still obtain even absent reliance on quotas) or (2) the lost opportunity to compete for

123. See *supra* note 5 and accompanying text.

124. *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560 (1992) (citations omitted) (internal quotation marks omitted).

125. *Id.*

126. *Id.* at 561 (internal quotation marks omitted).

admission? In these cases, it is well established that the lost opportunity is the injury. In one early case, *Regents of the University of California v. Bakke*,¹²⁷ the Court concluded that the prongs of injury, causation, and redressability were all met “by the simple doctrinal device of *recharacterizing the injury* . . . as involving not admission to medical school but the opportunity to compete on equal terms.”¹²⁸

By contrast, let us suppose that, in a case challenging a government regulation that allows producers of food to add an alleged carcinogen to their product, the injury is the actual incidence of cancer. So described, the injury seems highly speculative, for it is extremely uncertain whether the introduction of carcinogenic substances into food additives will produce cancer in particular human beings. So speculative an injury might not seem to meet the Court’s standard for “injury in fact.” In addition, defining an injury as the actual incidence of the harm makes the redressability prong difficult to meet. If the injury in a standard environmental case is the right not to suffer concrete personal health damage as a result of increased environmental risks, many environmental plaintiffs would be unable to show redressability.¹²⁹

Now let us consider the injury instead as the probability that the harm will come to pass. This description of the injury is surely far less speculative—indeed, it is not speculative at all, given that the probability of harm is certain even if the harm itself is not.¹³⁰ One might question whether probabilistic harm is in some cases sufficiently particularized,¹³¹ but at least some of the Court’s precedent suggests that the particularization requirement is prudential in nature and thus not a constitutional hurdle to standing.¹³²

127. 438 U.S. 265 (1978).

128. Sunstein, *What’s Standing After Lujan?*, *supra* note 14, at 203 (citing *Bakke*, 438 U.S. at 280–81 n.14).

129. Cf. Cass R. Sunstein, *Informational Regulation and Informational Standing: Akins and Beyond*, 147 U. PA. L. REV. 613, 636–37 (1999) (noting the problem in the context of suits seeking vindication of legal access to information).

130. Sunstein, *What’s Standing After Lujan?*, *supra* note 14, at 228.

131. *Id.*

132. See, for example, *FEC v. Akins*, 524 U.S. 11 (1998), which holds that the ban on generalized injuries is prudential rather than constitutional in character. If that is true, then courts will ordinarily assume that widely generalized injuries are not cognizable, but the ban can be overcome by a clear congressional statement. *But see* *Massachusetts v. EPA*, 549 U.S. 497, 518–20 (2007) (stressing the special status of Massachusetts as sovereign to uphold standing, thus suggesting that an individual’s injury might be too generalized to support standing). The fractured opinions in *Hein v. Freedom from Religion Foundation, Inc.*, 551 U.S. 587 (2007), further muddy the waters. *Compare id.* at 597–603 (Alito, J., plurality opinion) (classifying the particularized injury requirement as constitutional, notwithstanding the continued vitality of the exception recognized in *Flast v. Cohen*, 392 U.S. 83 (1968)), *with id.* at 615–18 (Kennedy, J., concurring) (also describing the requirement as constitutional but arguing against extending the *Flast* exception on the apparently subconstitutional ground that “[t]he courts must be reluctant to expand their authority by requiring intrusive and unremitting judicial management of the way the Executive Branch performs its duties”), *with id.* at 618 (Scalia, J., concurring in the judgment) (describing the requirement as constitutional and *Flast* as flatly inconsistent with it), *with id.* at 637 (Souter, J., dissenting) (arguing that the exception

Moreover, the injury thus described would surely be redressable: court relief would, under the facts as alleged, reduce the risk of harm.¹³³ Insofar as the plaintiff is complaining of a probabilistic harm, there is no problem with “injury in fact,” and the redressability requirements are plainly met.

B. *The Proposal for Expected Value–Based Standing*

My proposal is a simple one. In deciding whether there is an “injury in fact,” the court should decide whether the plaintiff has identified a harm with a positive expected value. The expected value is calculated by multiplying the magnitude of the harm by its probability.¹³⁴ If a positive expected value would be sufficient to support standing were it to arise as a typical “actual harm,” then the expected value should be deemed sufficient to support standing.¹³⁵ Put another way, if the expected value were itself the amount of a standalone harm that met the standard requirements for standing—i.e., if it were an injury that was actual or imminent—then standing for the probabilistic harm should also be recognized. For example, if the plaintiff can show a mortality risk of 1 in 100,000, an “injury in fact” has been shown.

My proposal helps to identify some of the confusions in the Supreme Court’s decisions, especially those that deny standing when the injury is merely “speculative.” At the same time, my proposal is broadly consistent with the view of the majority of courts of appeals that, as noted above, have

in *Flast* can and should be extended). For a discussion of how the Court has variously treated the requirement as constitutional and prudential, see Craig A. Stern, *Another Sign from Hein: Does the Generalized Grievance Fail a Constitutional or a Prudential Test of Federal Standing to Sue?*, 12 LEWIS & CLARK L. REV. 1169, 1204–17 (2008).

133. See Sunstein, *What’s Standing After Lujan?*, *supra* note 14, at 229.

134. See Ariel Porat & Alex Stein, *Liability for Future Harm*, in PERSPECTIVES ON CAUSATION 221, 232–35 (Richard Goldberg ed., 2011) (arguing for the possibility of awards of damages for future harm along these lines). Sometimes, the expected value may be more complicated if there are multiple probabilistic outcomes—i.e., if there is a lottery of outcomes. See MARTIN J. OSBORNE, AN INTRODUCTION TO GAME THEORY 102 (2003). In that instance, relying on the assumption of von Neumann-Morgenstern preferences over the lottery, the expected value would equal the sum of the probability of each outcome multiplied by the magnitude of that outcome. See *id.*

My proposal does not affect the propriety of discounting, where appropriate, or the appropriate choice of discount rate. Thus, if the harm is to happen at some point in the future and discounting is deemed appropriate, then the monetized value of the harm should be discounted back to present value. It is then that value that should be multiplied by the probability of harm in determining whether there is standing. See *infra* text accompanying notes 275–277.

135. To be sure, when the injury in question is not just probabilistic, but truly purely speculative, expected value–based standing will not apply. Cf. Appellate Body Report, *European Communities—Measures Concerning Meat and Meat Products*, para. 125, WT/DS26/AB/R, WT/DS48/AB/R (Jan. 16, 1998) (opinion of the World Trade Organization Appellate Body finding no violation of the General Agreement on Tariffs and Trade or the WTO Agreement on the Application of Sanitary and Phytosanitary Measures where there was no scientific evidence of risk). Other forms of standing might still apply. See Nash, *supra* note 21, at 511 (advancing a proposal for precautionary-based standing where there is an uncertain risk of catastrophic and irreversible harm).

already endorsed the notion of probabilistic standing. But, as I also noted, different courts have reached different conclusions as to exactly what is needed to establish probabilistic harm.

My proposal is inconsistent with those courts of appeals that have cast doubt on probabilistic injuries as merely speculative, that have required a substantial risk, and that have required a showing of both a substantial risk and a substantial marginal increase in risk. In such cases, the analysis would be greatly clarified by a focus on the question of expected value. As I explained above,¹³⁶ expected-value analysis puts no particular stock in a substantial risk: a substantial risk can be undercut by a harm of lesser magnitude, just as a less substantial risk may still yield a sufficiently substantial expected value if the magnitude of the harm is large enough. And an expected-value approach is nuanced enough to separate harms that are probabilistic from harms that are pure speculation.

Application of my proposal for expected value–based standing would not depend on the identity of the plaintiff. Commentators and courts of appeals cases have suggested¹³⁷—although the Supreme Court seems now to have rejected¹³⁸—the idea that a sizeable organization might have standing even when none of its individual members would. The justification for such an asymmetric conclusion would be that, even if any one member stands an insubstantial chance of experiencing harm, statistically it is to be expected that at least one member will experience harm. The fact that my proposal requires no showing that the expected harm will be substantial avoids this asymmetry: if it is statistically expected that at least one member will experience harm, then that member would have standing. The organization would then have standing under the traditional rule that an organization has standing when any one of its members has standing.

At the same time, my proposal is also compatible with rules that afford certain categories of plaintiffs more (or less) access to a federal forum. For example, in *Massachusetts v. EPA*, the Supreme Court held that states enjoy “special solicitude” in standing analysis that traditional private plaintiffs do not.¹³⁹ Without addressing the merit of this rule,¹⁴⁰ I observe that it can be readily applied in conjunction with my proposal for expected value–based standing: if a state would have standing to pursue an “actual or imminent” injury that a more typical plaintiff would not, then there is no reason that a state that had a probabilistic injury with an expected value equal to the first

136. See *supra* text accompanying note 121.

137. Compare Elliott, *supra* note 17, at 504–06 (so interpreting the court’s decision in *Natural Res. Def. Council v. EPA*, 464 F.3d 1 (D.C. Cir. 2006), and endorsing that view), with Mank, *supra* note 19, at 721–32 (critiquing this possibility).

138. See *supra* text accompanying notes 59–71 (discussing *Summers v. Earth Island Inst.*, 555 U.S. 488 (2009)).

139. 549 U.S. 497, 518–21 (2007). For a proposal to restrict a category of standing to sovereign plaintiffs, see Nash, *supra* note 21, at 513–14.

140. The rule has been subject to critique. See, e.g., *Massachusetts*, 549 U.S. at 536–40 (Roberts, C.J., dissenting). See generally Mank, *supra* note 58; Calvin Massey, *State Standing After Massachusetts v. EPA*, 61 FLA. L. REV. 249 (2009).

injury should have standing under the proposal while an analogously situated more typical plaintiff would not.

I think it important to emphasize that I advocate expected value-based standing as the proper standard for determining whether there is “injury in fact” under the Constitution. Consistent with this point, I note two important aspects of existing standing doctrine that my proposal would in no way override and, indeed, that are consistent with my proposed understanding. First, prudential limitations on standing would apply, as always, and may direct the conclusion (absent congressional action to the contrary) that there is no standing in a case, the existence of expected value-based standing notwithstanding. Thus, for example, the notion that assertion of a generalized harm is insufficient to trigger standing in federal court¹⁴¹—which some have categorized as a nonconstitutional, prudential consideration—would apply in cases of expected value-based standing as in all cases.¹⁴² So too would the political question doctrine¹⁴³ and the barrier against challenging government inaction.¹⁴⁴

Second, there is no reason that Congress cannot choose to create statutory standing requirements that are more stringent than the constitutional standard, or even choose not to grant standing at all. Because I argue that expected value-based standing is merely authorized, not compelled, by the Constitution, I accept Congress’s ability to limit standing, or even not to grant standing at all, where expected value-based standing could exist. At the same time, I also believe it would be possible for Congress to recognize new causes of action and, in doing so, extend standing beyond the common law baseline.¹⁴⁵

I recognize that, theoretically, it is possible to show that many things impose an exceedingly small increase in risk for an individual. If expected value-based standing were allowed to usher such cases into federal court, then the oft-mentioned “floodgates of litigation” would surely be thrown open. Therefore, under the “injury-in-fact” test, I advocate a *de minimis* exception to expected value-based standing: absent affirmative congressional intent to the contrary,¹⁴⁶ standing should not be allowed where the

141. See *supra* text accompanying note 131.

142. See *supra* note 132 and accompanying text.

143. See, e.g., *Allen v. Wright*, 468 U.S. 737, 751 (1984).

144. See *supra* note 37 and accompanying text.

145. See Sunstein, *What's Standing After Lujan?*, *supra* note 14, at 230–31; see also Cass R. Sunstein, *Standing Injuries*, 1993 SUP. CT. REV. 37 (arguing that the law in question should provide the relevant measure as to whether there has been a legal injury for standing purposes).

146. While I see a *de minimis* exception as sound policy, I do not see it as necessarily grounded in the Constitution, and also do not see why Congress should not be allowed the freedom to abrogate it in settings it deemed appropriate. On the questionable moral justification for, and difficulty of implementing, *de minimis* rules, see Matthew D. Adler, *Why De Minimis?*, SOC. SCI. RES. NETWORK (June 8, 2007), <http://ssrn.com/abstract=992878>.

expected value of the harm in question is *de minimis*.¹⁴⁷ Presumably, an expected value would be *de minimis* for this purpose if a corresponding “actual or imminent” injury would be considered too low to support standing.

In short, the proposal for expected value–based standing would allow standing when the expected value of a harm would, if it were a traditional “actual or imminent” harm, be a sufficient basis for standing. The proposal speaks only to the constitutional minimum requirement for standing. It does not implicate—and indeed is generally consistent with—recognized prudential limitations on federal court standing. The proposal would clarify the courts’ current muddled and conflicting approaches to probabilistic standing.

*C. The Basic Consistency of Expected Value–Based Standing with
Current Understandings of “Injury in Fact”*

As I conceive of it, injury under expected value–based standing meets the traditional requirements for “injury in fact.”¹⁴⁸ If the expected value would not, as a present injury, be sufficient to support standing, then neither should it be sufficient as a future harm. On the other hand, if a present injury of the same magnitude as the expected value of the future injury would support standing, then the expected value of the future injury should also support standing.

If probabilistic harm thus meets the current understanding of “injury in fact,” why have courts been reluctant to embrace probabilistic standing? The Supreme Court has yet to rule definitively on the issue.¹⁴⁹ And while most courts of appeals have endorsed the notion in the abstract,¹⁵⁰ some have imposed hurdles of substantiality that a plaintiff must clear in order to attain probabilistic standing.¹⁵¹ A D.C. Circuit panel grudgingly followed circuit

147. Cf. *Doll v. Brown*, 75 F.3d 1200, 1206 (7th Cir. 1996) (recognizing in the context of damages that “[t]o avoid flooding the courts with speculative cases, the lost chance to be actionable should no doubt exceed a *de minimis* threshold”); Porat & Stein, *supra* note 134, at 237–38 (advocating for the possibility of damage awards for future harm based on expected value while noting that “[s]mall risks of future illness should not be actionable”). I note that this corresponds to a *de minimis* exception that presumably exists for when actual harm gives rise to standing.

Professor Mank proposes that individuals have standing to challenge government action where the action would impose a risk of death or serious injury in excess of one in a million. See Mank, *supra* note 19, at 737–46. I note that the *de minimis* threshold might function somewhat analogously to Mank’s proposed lower limit for standing. I prefer to leave the precise determination of what is *de minimis* to the courts to determine on a case-by-case basis and in a textured way. Unlike Mank’s bright-line rule, my expected-value analysis would consider the precise nature of the harm and the time until the injury will occur.

148. For further discussion of the consistency of the proposal with existing understandings of standing, see *infra* Section III.C.1.

149. See *supra* note 54.

150. See *supra* text accompanying notes 85–122.

151. See *supra* text accompanying notes 85–115.

precedent recognizing probabilistic standing but simultaneously suggested that Supreme Court precedent had not validated probabilistic standing and asked the full court to review the question en banc.¹⁵²

I see four reasons for this judicial reluctance to accept expected value-based standing. Though none is ultimately valid, all the reasons—other than simple confusion—are ensconced in flawed understandings of standing and persist despite their lack of doctrinal or theoretical foundation.

First, courts may be simply confused. Some judges do not see that a small risk of a significant harm is the same as the certain loss of a harm of a smaller magnitude, and therefore they do not recognize that since the latter is a sufficient basis for standing so too should be the former.¹⁵³ One example, albeit perhaps an extreme one, of how such confusion can subvert judicial reasoning is the case of *City of Los Angeles v. Lyons*.¹⁵⁴ There, the Court found that a 42 U.S.C. § 1983 plaintiff who had been subjected to a chokehold during arrest had no standing to enjoin the police department from using chokeholds unless he could allege “that *all* police officers . . . *always* choke any citizen with whom they happen to have an encounter.”¹⁵⁵ The notion that standing requires absolute certainty is entirely at odds with conceptions of expected value and also with most understandings of standing doctrine.¹⁵⁶

Second, probabilistic injuries are not typical of the common law paradigm of injury,¹⁵⁷ a paradigm to which courts have become accustomed. Modern standing doctrine developed with the growth of the administrative

152. See *supra* text accompanying note 115.

153. Courts may believe, correctly, that purely speculative injuries are not a sufficient ground for standing. See *supra* note 135. However, they may erroneously believe that injuries are speculative in some cases when in fact they are not and on that basis deny standing in cases where it ought to be found to exist.

It also may be the case that courts believe that it will be very complicated to determine the expected value of harm in cases, see *supra* note 134 (discussing the possibility of calculating expected values based on lotteries of harms), and that that effort would be better used on other issues and other cases. See Timothy P. Terrell & Jane S. Smith, *Publicity, Liberty, and Intellectual Property: A Conceptual and Economic Analysis of the Inheritability Issue*, 34 EMORY L.J. 1, 49–51 (1985) (discussing how there may be justification for not correcting errors where measurement difficulties lead to excessive error correction costs); cf. Alan Schwartz & Robert E. Scott, *Contract Interpretation Redux*, 119 YALE L.J. 926, 941 (2010) (noting the importance of a “court’s opportunity cost—the more time the court spends on a particular interpretive issue, the less time it can spend on other issues or other cases”). However, courts may miss the point that expected value in general need not be calculated with precision; the only relevant question is whether the expected value is non-de minimis. See *infra* text accompanying notes 204–205.

154. 461 U.S. 95 (1983).

155. *Lyons*, 461 U.S. at 106.

156. See, e.g., *supra* note 51; *infra* notes 239–252 and accompanying text (discussing examples).

157. One might understand the Court’s holdings in the key cases discussed *supra* in Part I—*Linda R.S. v. Richard D., EKWRO*, and *Allen v. Wright*—as resulting from the difficulties in squaring the traditional common law paradigm with cases in which the harms claimed were probabilistic.

state.¹⁵⁸ But private common law conceptions continued to dominate as the nascent administrative state ascended, with the result that intrusions on common law rights and interests were seen to trigger the availability of judicial review.¹⁵⁹ In time, this changed. Congress expanded administrative structures and, with that growth, the number of people and other societal actors affected by regulation increased.¹⁶⁰ During the third quarter of the twentieth century, federal courts responded to the shift in the structure of law¹⁶¹ by looking to the Administrative Procedure Act ("APA")¹⁶² (which itself codified some earlier judicial conceptions of standing¹⁶³) to determine whether there was standing. Under this approach, courts looked to see whether a plaintiff had suffered a "legal wrong" or were "adversely affected or aggrieved by agency action."¹⁶⁴ In other words, the courts looked to see how the law defined a protected interest and then upheld standing where a legal injury had occurred.

In a 1970 decision, the Supreme Court abandoned this framework¹⁶⁵ and replaced the "legal interest test" with "a factual inquiry into the existence of harm."¹⁶⁶ This paradigm shift can be seen as a "respon[se] to a belief that the private-law model no longer worked in public-law cases."¹⁶⁷

158. See Sunstein, *Privatization of Public Law*, *supra* note 14, at 1438–51. *But cf.* Ann Woolhandler & Caleb Nelson, *Does History Defeat Standing Doctrine?*, 102 MICH. L. REV. 689, 691 (2004) (arguing that eighteenth- and nineteenth-century jurisprudence is not inconsistent with modern standing doctrine).

159. See Sunstein, *Privatization of Public Law*, *supra* note 14, at 1438.

160. See J.B. Ruhl & Harold J. Ruhl, Jr., *The Arrow of the Law in Modern Administrative States: Using Complexity Theory to Reveal the Diminishing Returns and Increasing Risks the Burgeoning of Law Poses to Society*, 30 U.C. DAVIS L. REV. 405, 466 (1997) (positing how administrative structure begets interested parties, who eventually seek additional legal structure); see also J.B. Ruhl & James Salzman, *Mozart and the Red Queen: The Problem of Regulatory Accretion in the Administrative State*, 91 GEO. L.J. 757, 769–75 (2003) (presenting various metrics confirming the growth of the administrative state); Richard B. Stewart, *The Discontents of Realism: Interest Group Relations in Administrative Regulation*, 1985 WIS. L. REV. 655, 655 ("Federal regulation . . . has generated massive litigation during the past 15 years through agency and judicial review proceedings.").

161. See Sunstein, *Privatization of Public Law*, *supra* note 14, at 1441–44 (explaining the shift and the reasons for it).

162. 5 U.S.C. § 702 (2006).

163. Sunstein, *Privatization of Public Law*, *supra* note 14, at 1438–40.

164. See 5 U.S.C. § 702 ("A person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action within the meaning of a relevant statute, is entitled to judicial review thereof").

165. See *Ass'n of Data Processing Serv. Orgs., Inc. v. Camp*, 397 U.S. 150, 153 (1970).

166. Sunstein, *Privatization of Public Law*, *supra* note 14, at 1445 (citing *Data Processing*, 397 U.S. at 153).

167. *Id.* at 1446. Other authors have also commented on the failings of the private law model in public law cases. See Buzbee, *supra* note 14, at 271–82 (arguing in favor of judicial deference to legislative definitions of harm and standing); Samuel Issacharoff, *Private Claims, Aggregate Rights*, 2008 SUP. CT. REV. 183, 184–85 (arguing that the rules of civil procedure in cases other than class actions assume a setting of private litigation rather than litigation of aggregate rights).

The rejection of the private law model was not, however, complete. The 1970s and 1980s saw Court decisions—including *Linda R.S.*, *EKWRO*, and *Allen v. Wright*—that reaffirmed standing doctrine’s reliance on traditional notions of common law harm. In particular, these decisions ensconced the requirement of a traditional injury that is actual or imminent. Some have argued that, underlying this approach—on which modern standing doctrine has developed—is the view that the common law is the paradigm for judicial intervention.¹⁶⁸ As such, if an injury does not correspond well to an injury at common law, courts will be reticent to recognize standing.

To the extent that courts’ adherence to common law understandings of harm undergirds their reluctance to accept probabilistic standing, this reliance is troublesome. Such applications of standing frustrate Congress’s goals in creating regulatory programs in the first instance. And there is nothing in Article III (or the APA) to forbid treatment of probabilistic harms as “injuries.”¹⁶⁹ It is true that some probabilistic harms do not seem to readily translate into traditional common law injuries.¹⁷⁰ But Congress may recognize that harms in administrative law cases are generally probabilistic or systemic and that agencies may implement a regulatory program to redress harms of precisely that sort.¹⁷¹

A third, related reason that may explain judicial resistance to expected value-based standing is a belief by some judges that there are some harms for which Congress ought not to be able to prescribe relief. Though I am not aware of any court actually having come out and said this,¹⁷² it is possible that courts often rely upon unarticulated judgments as to what constitutes an “appropriate” injury to pursue in the federal courts. As above, such arguments find no support in Article III. Further, judicial determinations of this kind may sometimes serve to undermine the separation of powers that modern standing doctrine was purportedly created to protect.¹⁷³ Courts that

168. See Sunstein, *Privatization of Public Law*, *supra* note 14, at 1451–59.

169. *Id.* at 1463; Hessick, *supra* note 18 at 65–70; see also Fletcher, *supra* note 14, at 233.

170. This may overstate matters. As I discuss below, even now, existing jurisprudence recognizes standing in some cases in which the harm is probabilistic. See *infra* notes 218–231 and accompanying text. In particular, consider that in any case in which future relief—such as injunction—is sought, one can argue that an assumption is being made about the probability of harm continuing into the future. See *infra* note 210 and accompanying text.

171. Cf. Kimberly N. Brown, *Justiciable Generalized Grievances*, 68 MD. L. REV. 221 (2008) (arguing in favor of constitutionality of standing to challenge harms that are broadly felt by the public).

172. Justice Scalia’s opinion in *Lujan v. Defenders of Wildlife*, 504 U.S. 555 (1992), came close to suggesting that some claims to vindicate an undifferentiated public interest in having the executive branch act in accordance with law should be constitutionally uncognizable: “To permit Congress to convert the undifferentiated public interest in executive officers’ compliance with the law into an ‘individual right’ vindicable in the courts is to permit Congress to transfer from the President to the courts the Chief Executive’s most important constitutional duty, to ‘take Care that the Laws be faithfully executed.’” *Id.* at 577 (citing U.S. CONST., art. II, § 3).

173. See *infra* text accompanying notes 252–257.

preclude standing in such cases effectively detract from Congress's power to determine the proper scope of federal court jurisdiction.

A fourth reason for courts' reluctance to adopt expected value-based standing may be that cases of probabilistic harm are often cases in which the harm may be shared by many and thus may seem generalized. Consider the paradigmatic setting in which regulatory action (or inaction) may be alleged to cause a one-in-a-million risk of disease, injury, or death. That risk may be shared by large numbers of people, indeed even large portions (or all) of the population. As such, the harm may be characterized as generalized, and that may prompt courts to decline standing. In some sense, this view may also prompt some commentators to interpret existing probabilistic-standing lower court jurisprudence as concluding that standing is more likely to be upheld for an organization of many members alleging a probabilistic harm than for a single individual:¹⁷⁴ while the probabilistic harm of a single person seems quite generalized, courts may be more inclined to approve of standing where an organization of a million members brings suit. There, one can say, apparently with somewhat more certainty (even though the high likelihood remains only statistical¹⁷⁵), that one of the members will suffer the harm in question.¹⁷⁶ That apparent (if ephemeral) increase in certainty may give courts comfort (if false comfort) in allowing organizational standing where individual standing would not otherwise inhere.

If the problem is that expected value-based harm tends to be generalizable, then courts should say so. Indeed, I agree that prudential rejection of standing in cases of generalized harm should continue under an expected-value-based-standing regime.¹⁷⁷

D. The Implications of Expected Value-Based Standing

My proposal, if followed, would have ramifications for standing jurisprudence, although perhaps not quite as many on final outcomes of cases. Here, I survey briefly the likely impact of expected value-based standing on the Supreme Court decisions I discussed in Part I, the various conflicting approaches taken by the courts of appeals, and standing in administrative law cases.¹⁷⁸

174. See, e.g., Elliott, *supra* note 17, at 504–06.

175. While it may be possible to show that it is statistically highly likely that one member of the organization may suffer the harm, it might turn out that no one does, or more than one does. Note also that this conception of the harm across the group still does not change the fact that the harm may be generalized.

176. See, e.g., *Natural Res. Def. Council v. EPA*, 464 F.3d 1, 7 (D.C. Cir. 2006) (upholding standing on the ground that “[o]ne may infer from the statistical analysis that two to four of [plaintiff’s] nearly half a million members will develop cancer as a result of the rule”).

177. See *supra* text accompanying notes 141–142.

178. Expected value-based standing might also have altered the result of the standing inquiry in *Shain v. Veneman*, 376 F.3d 815 (8th Cir. 2004), where the Eighth Circuit ruled against probabilistic standing. See *supra* text accompanying notes 116–120. Note, however, that the Eighth Circuit does not seem to have understood itself to have announced a blanket

I begin with the three “building block” Supreme Court cases I discussed in Part I. A focus on expected value would probably be sufficient to support a finding of “injury in fact” in *Linda R.S.* (the expected value of child support if the government were to prosecute), *EKWRO* (the expected value of medical services if the IRS changed its regulations), and *Allen* (the expected value of swifter, more complete desegregation of public schools if the IRS changed the regulations applicable to private schools). Several qualifications are worth noting, however. First, the finding of an “injury in fact” will be inconsistent with the result actually reached by the Court in a case only to the extent that the Court’s holding pertained to constitutional, rather than statutory, standing. For example, the Court in *Linda R.S.* specifically noted that its holding applied “at least in the absence of a statute expressly conferring standing.”¹⁷⁹ It follows that even if the Court were to have concluded that constitutional standing existed in a case, Congress would remain free to withdraw statutory standing if it so chose. Second, even if expected value-based standing were found to exist, the requirement that the alleged injury be particular and not generalized would persist.¹⁸⁰ And of course the mere fact that standing would have been upheld does not mean that the plaintiff would have been victorious. Indeed, in *Linda R.S.*, it seems that courts would have disposed of the case on other grounds long before the case made it to a trial on the merits.¹⁸¹ The same probably would have been true of *EKWRO* and *Allen*, as well: both cases could have been disposed of on the ground that a taxpayer ordinarily cannot litigate the tax liability of another.¹⁸²

The proposal helps to resolve the conflicting views of the courts of appeals on probabilistic standing. Recall that the expected value is the product of the probability of the harm and the magnitude of the harm. A moment’s reflection reveals that a substantial harm will be called for only where the relative magnitude of the possible harm is small. A sizeable harm need not be accompanied by a substantial increase in risk in order to give rise to a non-de minimis expected value and thus justify standing under the proposal.¹⁸³

Nor should courts require a showing of both a substantial harm and a substantial marginal increase in harm. Presumably if the expected value of the “harm with th[e] increase[d] [risk] taken into account”¹⁸⁴ is not sufficient to warrant standing (perhaps because it is de minimis), then it must a fortiori

prohibition against probabilistic standing insofar as it proclaimed that “the jurisprudence of our sister circuits is consistent with our holding in this case.” *Shain*, 376 F.3d at 819.

179. *Linda R.S. v. Richard D.*, 410 U.S. 614, 617 (1973).

180. See Sunstein, *Privatization of Public Law*, *supra* note 14, at 1467–68.

181. See *supra* text accompanying note 37.

182. See *supra* text accompanying note 46.

183. Amanda Leiter, *Substance or Illusion? The Dangers of Imposing a Standing Threshold*, 97 GEO. L.J. 391, 405–09 (2009).

184. *Pub. Citizen, Inc. v. Nat’l Highway Traffic Safety Admin.*, 489 F.3d 1279, 1295 (D.C. Cir. 2007).

be the case that the marginal increase in the expected value also would not, by itself, satisfy standing requirements.

I note, as I did above, that recognition of expected value-based standing might affect the reasoning of some cases even if it does not disturb outcomes. Consider that in the typical administrative law case, a court considering a challenge to agency action may remand the case to the agency for further proceedings; and, on remand, it is hardly uncommon for the agency to adhere to its original determination. In many conventional administrative law cases, it is not clear that a plaintiff will ultimately receive what he or she wants even if he or she succeeds on the issue at hand.

To see the special difficulty with procedural injuries, consider that the injury in a case of so-called "procedural injury" may be described in two ways.¹⁸⁵ In the first, under expected value-based standing as I conceive of it, the injury would be the procedural injury itself. As I discussed above, such a conception of the relevant injury would remove any concerns over whether court relief would "redress" the plaintiff's injury.¹⁸⁶ But the Supreme Court has confronted the question of standing in cases of procedural injury on rare occasions and, although it has upheld standing, it has offered little justification for that result. On those occasions, the Court has eschewed reasoning based on probabilistic injury in favor of the second conception of the relevant injury—that is, relief through the reversal of the agency action.¹⁸⁷

For example, in a footnote in its opinion in *Lujan v. Defenders of Wildlife*,¹⁸⁸ the Court suggested that a relaxation of the redressability requirement would be appropriate in cases involving a procedural injury: "There is this much truth to the assertion that 'procedural rights' are special: The person who has been accorded a procedural right to protect his concrete interests can assert that right without meeting all the normal standards for redressability and immediacy."¹⁸⁹ Implicit in the Court's reasoning is that the relevant injury is the plaintiff's "concrete interests" in reversing the relevant agency action.

The Court took a similar tack in *FEC v. Akins*.¹⁹⁰ There, the Court approved standing in a case where a remand from the courts back to an

185. See *supra* text accompanying notes 127–133.

186. See *supra* text accompanying notes 131–133.

187. See, e.g., *FEC v. Akins*, 524 U.S. 11, 25 (1998). The court reasoned as follows:

If a reviewing court agrees that the agency misinterpreted the law, it will set aside the agency's action and remand the case—even though the agency (like a new jury after a mistrial) might later, in the exercise of its lawful discretion, reach the same result for a different reason. Thus respondents' 'injury in fact' is 'fairly traceable' to the FEC's decision not to issue its complaint, even though the FEC might reach the same result exercising its discretionary powers lawfully. For similar reasons, the courts in this case can 'redress' respondents' 'injury in fact.'

Id. (internal citation omitted); see also Sunstein, *supra* note 129, at 636–37 (noting the *Akins* Court's dodging of the probabilistic issue).

188. 504 U.S. 555 (1992).

189. *Lujan*, 504 U.S. at 572 n.7.

190. 524 U.S. 11.

administrative agency was not guaranteed to afford the plaintiffs the ultimate relief they sought. The Court explained, "Agencies often have discretion about whether or not to take a particular action. Yet those adversely affected by a discretionary agency decision generally have standing to complain that the agency based its decision upon an improper legal ground."¹⁹¹ It is not surprising, then, that the Court rejected the government's argument that standing was unavailable. While the Court surely drew the correct conclusion in *Lujan* and *Akins*, the Court's reasoning is scant and unconvincing. Why, after all, should procedural injuries be treated differently from other injuries—particularly since the standing requirement originates in the Constitution?

Thus, my proposal for expected value-based standing provides a simpler basis for finding standing in cases of procedural injury. Invocation of expected value-based standing removes the need to apply the redressability prong with less stringency in cases of procedural injury. As such, it treats cases of procedural injury in the same way as other cases. It is important to realize, however, that, while the proposal may have applicability in certain types of administrative law cases, the proposal's scope is by no means restricted to administrative law cases.¹⁹²

III. OBJECTIONS AND CRITICISMS

Skeptics might raise several objections to my proposal. I address them in this Part. I consider arguments that question (1) whether courts are competent to evaluate expected value-based standing, (2) whether expected value-based standing extends standing too far past the limits set by existing jurisprudence, and (3) whether expected value-based standing is normatively desirable.

A. Are Courts Competent to Evaluate Expected Value-Based Standing?

An initial question is whether courts are competent to make the calculations (that is, to calculate the product of the probability and magnitude of the relevant harms) and determinations necessary to apply expected value-based standing. If we cannot expect courts to do so competently, then it matters little whether expected value-based standing is consistent with existing jurisprudence or whether it is normatively desirable.

In fact, courts already perform similar calculations in different settings. First, consider the responsibility of a judge in determining whether to grant bail and, if so, at what level. Among the factors the judges must weigh under the standard test are the defendant's risk of flight and the risk of future harm.¹⁹³ Both factors ask the court to make determinations based on risk.

191. *Akins*, 524 U.S. at 25.

192. See *supra* notes 14–16, 23–24 and accompanying text.

193. For federal authority, see 18 U.S.C. § 3141(a) (2006) (directing that a "judicial officer" determine whether someone who has been arrested should be "released or detained"); *id.* § 3142(f)(2) (directing that a detention hearing should be held, inter alia, where there is "a

Consider next the judicial determination of whether to grant a preliminary injunction. In such circumstances, a court is directed to weigh, among other things, the irreparable harm to the defendant if the injunction issues and the plaintiff's likelihood of success on the merits, against the irreparable harm to the plaintiff if the injunction is not issued.¹⁹⁴ Here, the court must make at least three estimates of probability. While one of the factors—the likelihood of success on the merits—may fall within a court's particular area of expertise,¹⁹⁵ the others—determining whether granting the injunction will result in irreparable harm—calls on the court to make more difficult calls of probability.¹⁹⁶ The court must determine whether any harm is indeed likely to occur (or continue) in the future and, if so, whether there is a sufficient showing that the harm will be irreparable.¹⁹⁷

In addition, consider the Supreme Court's 2009 decision in *Caperton v. A.T. Massey Coal Co.*, where the Court held that the Due Process Clause required an elected judge's recusal when there was an "intolerable probability of actual bias."¹⁹⁸ The Court concluded as follows:

serious risk that such person will flee" or "a serious risk that such person will obstruct or attempt to obstruct justice, or threaten, injure, or intimidate, or attempt to threaten, injure, or intimidate, a prospective witness or juror"); *id.* § 3142(e) ("If, after a hearing . . . the judicial officer finds that no condition or combination of conditions will reasonably assure the appearance of the person as required and the safety of any other person and the community, such judicial officer shall order the detention of the person before trial."); *id.* § 3142(g)(4) (listing, among the factors to be considered in determining the conditions of release, "the nature and seriousness of the danger to any person or the community that would be posed by the person's release").

194. See, e.g., *Am. Hosp. Supply Corp. v. Hosp. Prods. Ltd.*, 780 F.2d 589, 593–94 (7th Cir. 1986).

195. But cf. Joshua P. Davis, *Taking Uncertainty Seriously: Revising Injunction Doctrine*, 34 RUTGERS L.J. 363, 410, 440 (2003) (asserting that open-ended judicial assessments may result in a court's certainty that equitable relief is proper based on the merits even when equities may weigh against such relief).

196. See Nash, *supra* note 21, at 517 (putting the question of whether to grant a preliminary injunction in the language of the precautionary principle); Cass R. Sunstein, *Irreversible and Catastrophic*, 91 CORNELL L. REV. 841, 866–69 (2006) (discussing preliminary injunctions in environmental cases in the context of the irreversible harm precautionary principle).

197. Consider as well the question of whether a defendant has acted negligently in failing to undertake a particular precaution that, had it been taken, might have avoided the negligent injury complained of. Judge Learned Hand's famous formula calls on courts to determine the probability that the injury would occur in the absence of the precautionary step. See *United States v. Carroll Towing Co.*, 159 F.2d 169, 173 (1947) ("[I]f the probability be called P; the injury, L; and the burden, B; liability depends upon whether B is less than L multiplied by P: i.e., whether $B < PL$ "). Not only do courts routinely make such determinations but the question is often left to juries to decide.

The question of whether the test for an injunction is as reducible to formula as the negligence standard has been the subject of debate. Compare *Am. Hosp. Supply Corp.*, 780 F.2d at 593 (developing formula to describe dispositions of preliminary injunction requests), with Linda J. Silberman, *Injunctions by the Numbers: Less Than the Sum of Its Parts*, 63 CHI.-KENT L. REV. 279 (1987) (criticizing Judge Posner's formula in *American Hospital Supply Corp.*).

198. 556 U.S. 868, 882, 886–87 (2009).

[T]here is a serious risk of actual bias—based on objective and reasonable perceptions—when a person with a personal stake in a particular case had a significant and disproportionate influence in placing the judge on the case by raising funds or directing the judge's election campaign when the case was pending or imminent.¹⁹⁹

Finally, an approach that incorporates expected-value calculations is also present in the Court's test for determining whether a criminal defendant is prejudiced—and therefore perhaps entitled to relief—by virtue of ineffective assistance of counsel. The defendant must demonstrate "a reasonable probability that, but for counsel's unprofessional errors, the result of the proceeding would have been different."²⁰⁰

199. *Caperton*, 556 U.S. at 884. At the same time, the *Caperton* case also demonstrates some of the difficulties courts encounter when dealing with probabilities. The Court had to explain no fewer than three links in the probabilistic causal chain. First, the Court explained that Blankenship's (the litigant's) "campaign contributions—in comparison to the total amount contributed to the campaign, as well as the total amount spent in the election—had a significant and disproportionate influence on the electoral outcome." *Id.* at 885. Second, the Court noted the following link:

The temporal relationship between the campaign contributions, the justice's election, and the pendency of the case [was] critical. It was reasonably foreseeable, when the campaign contributions were made, that the pending case would be before the newly elected justice. The \$50 million adverse jury verdict had been entered before the election, and the Supreme Court of Appeals was the next step once the state trial court dealt with post-trial motions. So it became at once apparent that, absent recusal, Justice Benjamin would review a judgment that cost his biggest donor's company \$50 million. Although there is no allegation of a *quid pro quo* agreement, the fact remains that Blankenship's extraordinary contributions were made at a time when he had a vested stake in the outcome.

Id. at 886. Third, the Court acknowledged the contention by the petitioner that, although there was neither a bribe nor criminal influence, "Justice Benjamin would nevertheless feel a debt of gratitude to Blankenship for his extraordinary efforts to get him elected." *Id.* at 882.

Dissenting, Chief Justice Roberts took issue with the majority's probabilistic findings. *Id.* at 890–91 (Roberts, C.J., dissenting). He noted that, while Blankenship had made large contributions in furtherance of Justice Benjamin's election, "large independent expenditures were also made in support of Justice Benjamin's opponent." *Id.* at 900–01. The Chief Justice further questioned the extent to which Blankenship's contributions affected the outcome of the judicial contest:

It is also far from clear that Blankenship's expenditures affected the outcome of this election. Justice Benjamin won by a comfortable 7-point margin Many observers believed that Justice Benjamin's opponent doomed his candidacy by giving a well-publicized speech that made several curious allegations; this speech was described in the local media as "deeply disturbing" and worse. Justice Benjamin's opponent also refused to give interviews or participate in debates. All but one of the major West Virginia newspapers endorsed Justice Benjamin. Justice Benjamin just might have won because the voters of West Virginia thought he would be a better judge than his opponent.

Id. at 902 (citation omitted) (internal quotation marks omitted).

200. *Strickland v. Washington*, 466 U.S. 668, 694 (1984).

One also can find an expected value-type approach in an analysis that some states call on judges to conduct in deciding whether to allow the holder of a contingent remainder to raise a claim against a present holder of property. Some courts hinge the cognizability of such a claim on the likelihood that the contingency that must occur for the contingent remainder to vest will in fact come to pass. *E.g.*, *Union Cnty. v. Union Cnty. Fair Ass'n*, 633 S.W.2d 17, 19 (Ark.

To be sure, there are settings in which courts have been historically reticent to engage in difficult probabilistic assessments. For example, the anticipatory nuisance doctrine generally bars nuisance suits until it can be alleged that a nuisance actually exists.²⁰¹ Courts are also often reluctant to award damages for lost profits in contracts cases on the grounds that they are speculative.²⁰² Still, even if courts sometimes refrain from probabilistic damage calculations, they often do award probabilistic damages.²⁰³ Moreover, the calculation required to determine whether there is standing need not be as precise as it often must be in other contexts—to set damages, for example. In any event, my overarching point is not that courts embrace all opportunities to engage in probabilistic calculations, only that they do so—and are quite capable of doing so—in many circumstances.

For purposes of exploring expected value, I do not suggest any kind of complex arithmetic. In most cases, the central issues will be straightforward. In addition, the calculations will often not have to be precise²⁰⁴; all that a court must analyze is whether there is a positive expected value, not the exact amount.²⁰⁵ For these reasons, the issue of judicial competence does not seem to be a serious problem.

1982) (“The holder of a possibility of reverter can restrain an act of waste by the holder of a determinable fee only when it appears that there is a reasonable certainty that the fee will terminate and the waste would cause serious damage to the property.”); *Pedro v. January*, 494 P.2d 868, 875 (Or. 1972) (“It is clear that if the chances are remote that the contingency vesting the interest will occur, courts will not give relief of any kind to the contingent remainderman. On the other hand, if the contingency is fairly certain, and, therefore, the likelihood of damage to the remainderman is high, courts are more inclined to aid him.”).

201. See, e.g., *Green v. Castle Concrete Co.*, 509 P.2d 588, 591 (Colo. 1973) (en banc). Note that this feature of common law nuisance has been cited as a justification and explanation for the emergence of the modern environmental regulatory state. See JESSE DUKEMINIER ET AL., *PROPERTY* 759–61 (7th ed. 2010).

202. See HOWARD O. HUNTER, *MODERN LAW OF CONTRACTS* § 14:16 (2011).

203. E.g., *Doll v. Brown*, 75 F.3d 1200, 1206 (7th Cir. 1996) (recognizing “the inescapably probabilistic character of many injuries”).

204. Cf. *Allen v. Wright*, 468 U.S. 737, 751 (1984) (“[T]he constitutional component of standing doctrine incorporates concepts concededly not susceptible of precise definition.”); ERWIN CHEMERINSKY, *FEDERAL JURISDICTION* 67 (6th ed. 2012) (“No formula exists for determining what types of injuries are adequate to allow a plaintiff standing to sue in federal court.”).

The lack of need for precision will mitigate the incentive for plaintiffs to overstate, and defendants to understate, the extent and likelihood of harm. Indeed, precise calculations may often be very difficult in probabilistic settings. Query, for example, with respect to the *Evans* case (discussed *supra* in text accompanying notes 97–100), how one might calculate the precise harm resulting from the increased risk of flooding.

205. Cf. *Saint Paul Mercury Indem. Co. v. Red Cab Co.*, 303 U.S. 283, 289 (1938), *superseceded in part by* 28 U.S.C. § 1447 (1988) (“It must appear to a legal certainty that the claim [in a federal diversity case] is really for less than the jurisdictional amount to justify dismissal.”); *Morrison v. Allstate Indem. Co.*, 228 F.3d 1255, 1269 (11th Cir. 2000) (“[A] plaintiff who bases diversity jurisdiction on the value of injunctive relief must show that the benefit to be obtained from the injunction is ‘sufficiently measurable and certain to satisfy the . . . amount in controversy requirement’” (alterations in original) (quoting *Ericsson GE Mobile Commc’ns, Inc. v. Motorola Commc’ns & Elecs., Inc.*, 120 F.3d 216, 221 (11th Cir. 1997))).

*B. Does Expected Value-Based Standing Extend Standing Doctrine
Too Far Beyond Its Existing Constitutional Moorings?*

Is expected value-based standing consistent with existing constitutional doctrine? Some people might be skeptical.²⁰⁶ My defense of expected value-based standing proceeds in two basic steps. I first respond to the argument that expected value-based standing is inconsistent with the requirements that the Supreme Court has identified for standing—and, in particular, that it calls for recognizing injuries that do not satisfy the existing “injury in fact” requirements. Second, I bolster my argument by demonstrating that my proposal for expected value-based standing would not fundamentally alter most of existing standing doctrine. To do this, I show first that existing law recognizes (if implicitly) various forms of standing based on probabilistic analysis. I also ground the consistency of expected value-based standing with existing law by arguing that injuries in cases of expected value-based standing are often felt, in various ways, in the present.²⁰⁷

I begin by observing that the Supreme Court has left open the validity of probabilistic standing.²⁰⁸ Indeed, although it has never recognized it formally, the Court has from time to time acquiesced in the notion of

The situation where the probability of harm truly cannot be established with certainty thus presents a slightly different problem. For a discussion of the possibility of precautionary-based standing that might apply in certain cases, see Nash, *supra* note 21. Cf. Dan M. Kahan et al., *Risk and Culture: Is Synthetic Biology Different?* (Yale Law Sch. Cultural Cognition Project, Working Paper No. 29, 2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1347165 (arguing that cultural background may influence risk perceptions and applying the point empirically to perceptions about risks posed by global warming as opposed to synthetic biology).

206. See *Massachusetts v. EPA*, 549 U.S. 497, 541–42 (2007) (Roberts, C.J., dissenting) (emphasizing the speculative nature of injury from global warming); *supra* text accompanying note 115 (describing the suggestion by a D.C. Circuit panel that the viability of probabilistic standing be addressed by the court en banc).

207. Because my proposal for expected value-based standing is broadly consistent with existing standing doctrine, it differs from other proposals to revamp standing jurisprudence. For example, Professor Elliott suggests, as an alternative to standing, allowing federal courts to abstain in cases where the requirements for what is now standing are not met. See Elliott, *supra* note 17, at 510–14. She does not argue that a system of abstention would be consistent with existing jurisprudence. Instead, she recommends jettisoning existing standing jurisprudence as unworkable. *Id.* at 510 n.254 (“Calling upon the Court to abandon many of its standing decisions does implicate stare decisis, but as the Court has made clear in numerous cases, stare decisis does not require slavish devotion to precedent that fails.”); see also David A. Dana, *Existence Value and Federal Preservation Regulation*, 28 HARV. ENVTL. L. REV. 343, 397–99 (2004) (describing the constitutionality of standing based on the “existence value” of particular natural resources, while also noting that considerable Supreme Court precedent is unfriendly to the concept); Richard Murphy, *Abandoning Standing: Trading a Rule of Access for a Rule of Deference*, 60 ADMIN. L. REV. 943 (2008) (arguing in favor of jettisoning “injury-in-fact” analysis and instead granting relief against the government only to enforce a clear duty).

208. See *supra* note 54 and accompanying text.

probabilistic standing.²⁰⁹ Next, I recall the discussion above in Section II.C to the effect that injury as conceived under expected value–based standing meets the traditional requirements for “injury in fact.” Only if the expected value of the probabilistic injury is sufficiently concrete will there be expected value–based standing. Having established that the existing understanding of “injury in fact” is broad enough to encompass injuries in cases of probabilistic harm, I turn to points that bolster that conclusion. First, there are existing standing doctrines that rely, if implicitly, on probabilistic analysis. Second, the injury in many cases of expected value–based standing can be felt in the present.

I identify five types of standing under existing doctrine that rely, if implicitly, on probabilistic analysis. First, standing is in some sense grounded on probabilities almost any time an allegation of future harm is the basis for standing.²¹⁰ After all, one can rarely be certain that an alleged future harm will indeed come to pass. Standing rests on the probability that it will in fact come to pass. Consider, for example, *Younger* abstention doctrine, under which federal courts abstain from enjoining pending criminal prosecutions.²¹¹ This means that standing to proceed in federal court must extend precisely to cases where there is no prosecution pending yet the threat of prosecution is sufficiently high enough.²¹² As another example, consider the Court's 2008 decision in *Davis v. FEC*.²¹³ The Court upheld the petitioner's right to challenge a federal election law rule that allowed petitioner's opponent to receive greater contributions than usual based on petitioner's *intent* to spend more than \$350,000 of his personal funds on his campaign.²¹⁴ Justice Alito's opinion for the Court explained that the federal election rule in question “would shortly burden his expenditure of personal funds by allowing his opponent to receive contributions on more favorable terms.”²¹⁵ The Court concluded that “there was no indication that his opponent would forgo that opportunity,”²¹⁶

209. See *supra* notes 54–58 and accompanying text; *infra* text accompanying notes 210–231.

210. Cf. Richard A. Epstein, *Standing and Spending—The Role of Legal and Equitable Principles*, 4 CHAP. L. REV. 1, 29 (2001) (noting important distinction in theory of standing between actions at law for damages and actions in equity for an injunction against future harm); Richard A. Epstein, *Standing in Law & Equity: A Defense of Citizen and Taxpayer Suits*, GREEN BAG, Autumn 2002, at 17, 19–21 (to same effect).

211. *Younger v. Harris*, 401 U.S. 37, 54 (1971) (holding that federal courts may not enjoin pending criminal state proceedings in which the defendant alleges the criminal statute is unconstitutional, except in extenuating circumstances).

212. Compare *id.* at 41–42 (“[P]ersons having no fears of state prosecution except those that are imaginary or speculative, are not be accepted as appropriate plaintiffs.”), with *Steffel v. Thompson*, 415 U.S. 452, 459 (1974) (finding standing to pursue injunction against prospective state court prosecution where petitioner alleges threats of prosecution that are not “imaginary or speculative” (quoting *Younger*, 401 U.S. at 42)).

213. 554 U.S. 724 (2008).

214. *Davis*, 554 U.S. 724.

215. *Id.* at 734.

216. *Id.*

apparently on the ground that “the record at summary judgment indicated that most candidates who had the opportunity to receive expanded contributions had done so.”²¹⁷

The Court’s reliance on what “most candidates” under the relevant circumstances would do indicates tacit endorsement of probabilistic standing. Even beyond that, the Court assumed (without stating) that the additional funding the opponent could or would receive would make it more likely that the opponent would win the race. And, insofar as the petitioner’s real harm would seem to be losing the election, that conclusion also rests on probabilities.

Standing under the Declaratory Judgment Act similarly rests on probabilistic calculation. The Act permits federal courts to “declare the rights and other legal relations of any interested party seeking such declaration, whether or not further relief is or could be sought.”²¹⁸ Professor Borchard’s justification for allowing declaratory judgments rests on the ground that a “prospective victim” ought not to be told “that the only way to determine whether the suspect is a mushroom or a toadstool is to eat it.”²¹⁹ Put another way, the Declaratory Judgment Act allows a “prospective victim” to determine “whether the suspect is a mushroom or a toadstool” before eating it—while the chance that it is in fact a toadstool is merely probabilistic. The Supreme Court has underscored this probabilistic understanding of the Act, recognizing as a basic proposition that

where threatened action by government is concerned, we do not require a plaintiff to expose himself to liability before bringing suit to challenge the basis for the threat The plaintiff’s own action (or inaction) in failing to violate the law eliminates the imminent threat of prosecution, but nonetheless does not eliminate Article III jurisdiction.²²⁰

It is on this basis, moreover, that facial constitutional challenges are permissible.²²¹

A possible response is that these examples are settings in which the probabilistic requirement for standing is very high—perhaps nearing vir-

217. *Id.* at 735.

218. 28 U.S.C. § 2201(a) (2006).

219. Edwin M. Borchard, *The Constitutionality of Declaratory Judgments*, 31 COLUM. L. REV. 561, 589 (1931).

220. *MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. 118, 128–29 (2007) (emphasis omitted). The Court proceeded to affirm that Article III jurisdiction can also exist in “situations in which the plaintiff’s self-avoidance of imminent injury is coerced by threatened enforcement action of a private party rather than the government.” *Id.* at 130.

221. *Id.* at 128–29 (citing *Steffel v. Thompson*, 415 U.S. 452 (1974); *Vill. of Euclid v. Ambler Realty Co.*, 272 U.S. 365 (1926); *Terrace v. Thompson*, 263 U.S. 197 (1923); *Ex parte Young*, 209 U.S. 123 (1908)); *see also Doe v. Bolton*, 410 U.S. 179, 188 (1973) (“The physician is the one against whom these criminal statutes directly operate in the event he procures an abortion that does not meet the statutory exceptions and conditions. The physician-appellants, therefore, assert a sufficiently direct threat of personal detriment. They should not be required to await and undergo a criminal prosecution as the sole means of seeking relief.”).

tual certainty.²²² I turn now to settings where that is not necessarily the case.

Existing law also incorporates a probabilistic approach into standing doctrine where the actual question in a case is moot but standing is found to exist lest the question be permitted to evade judicial review.²²³ Here, two probabilistic assessments implicitly undergird standing: there is the probability that the event in question will arise again, and there also is the probability that a justiciable controversy will arise.²²⁴

Fourth, consider the logic of allowing standing in overbreadth challenges. While the ordinary rule in standing is that one does not have standing to raise the rights of others, a special rule applies in First Amendment cases.²²⁵ Overbreadth doctrine allows parties to raise facial challenges to speech restrictions that are overbroad in that they reach a substantial amount of protected speech in relation to their legitimate scope, even if the challenging party's speech may in fact be unprotected.²²⁶ In effect, overbreadth doctrine allows a plaintiff to pursue a case in which he or she cannot show that he or she has suffered actual harm because the potentially unconstitutional restriction *could* constitutionally be applied to his or her speech. Rather, in effect, he or she is allowed to pursue the claim of some similarly situated third party whose protected speech *is* unconstitutionally abridged.²²⁷ The justification for this exception to the rule is that, were it otherwise, "persons whose expression is constitutionally protected may well refrain from exercising their rights for fear of criminal sanctions provided by a statute susceptible of application to protected expression."²²⁸ But this logic only holds if one accepts that it is probable that there are third parties whose behavior will be chilled. In this sense, standing to pursue overbreadth challenges may also be seen as probabilistic.

Fifth, consider standing in administrative law cases. In many conventional administrative law cases, there is no assurance that a plaintiff will ultimately receive what he or she wants, even if he or she succeeds on the issue at hand. Nonetheless, courts routinely recognize standing in such

222. See *supra* notes 47–53 and accompanying text (discussing the Court's decision in *City of Los Angeles v. Lyons*, 461 U.S. 95 (1983), which seems to require absolute certainty of some harms).

223. See, e.g., *Roe v. Wade*, 410 U.S. 113, 125 (1973).

224. For example, in *Roe v. Wade*, the justiciable controversy that could arise was that the government would again threaten to prosecute the act in question. *Id.*

225. KEITH WERHAN, *FREEDOM OF SPEECH* 144–45 (2004) (discussing how overbreadth doctrine allows individuals to challenge statutes as they apply to other parties); see also Michael C. Dorf, *Facial Challenges to State and Federal Statutes*, 46 STAN. L. REV. 235, 264–68 (1994) (arguing that overbreadth doctrine should extend beyond the First Amendment). But see Henry Paul Monaghan, *Overbreadth*, 1981 SUP. CT. REV. 1, 21–30 (arguing that standing rules that apply in First Amendment overbreadth cases are not special).

226. See WERHAN, *supra* note 225, at 144–45.

227. See, e.g., *Gooding v. Wilson*, 405 U.S. 518, 520–21 (1972) (discussing reasons for allowing a party to raise other parties' claims in an overbreadth attack).

228. *Id.*

cases.²²⁹ And the Supreme Court, on the rare occasions it has confronted the issue, has endorsed the conclusion that standing exists in such cases of procedural injury.²³⁰

The best response in administrative law cases is to assume that when Congress creates a procedural right, it does so not because the right will necessarily lead to particular results but because procedural rights create desirable structures, incentives, and probabilities—and also because they increase the legitimacy of any government interference with substantive rights. From this perspective, the injury in these cases satisfies the “injury-in-fact” requirement. In addition, however, the injury in these cases is also probabilistic.²³¹

These five instances where existing standing doctrine incorporates probabilistic analysis provide support for the notion that my proposal for expected value–based standing is not significantly inconsistent with existing law. Support for this premise may also be found by considering the various ways in which the injury in cases of probabilistic harm may be felt by the injured party in the present.

229. See *supra* text accompanying notes 185–191.

230. See *supra* text accompanying notes 185–189 (explaining that the Court has reached this conclusion without offering much in the way of reasoning and by applying standing’s “redressability” prong less stringently than it does in other contexts).

231. Justice Breyer has offered an argument along these lines for treating procedural injuries as concrete. While serving as a circuit judge, he confronted a somewhat related question: whether injury under NEPA should qualify as “irreparable” under the standard for whether to grant a preliminary injunction. NEPA requires the government to make a detailed statement, as a matter of process, of the environmental impacts of major government actions, see 42 U.S.C. § 4332 (2006), but it does not apply any substantive requirement that those possible environmental impacts actually affect the final decisions the government takes, Sunstein, *supra* note 129, at 621. At the end of the day, even if the court orders the agency to comply with the statutory requirements, the agency may yet choose to adhere to the decision it originally reached. Put another way, compliance with the statute affords aggrieved plaintiffs only a probabilistic chance that the agency will change its decision. On the other hand, courts cannot grant a preliminary injunction where the plaintiff cannot establish irreparable harm. But how can the injury in a NEPA case be seen as “irreparable” when it might in the end have no effect at all?

In one opinion addressing the issue, Justice Breyer explained that “when a decision to which NEPA obligations attach is made without the informed environmental consideration that NEPA requires, the harm that NEPA intends to prevent has been suffered.” *Massachusetts v. Watt*, 716 F.2d 946, 952 (1st Cir. 1983). He elaborated on this point in a subsequent case:

[T]he harm at stake is a harm to the *environment*, but the harm consists of the added *risk* to the environment that takes place when governmental decisionmakers make up their minds without having before them an analysis (with prior public comment) of the likely effects of their decision upon the environment. NEPA’s object is to minimize that risk, the risk of uninformed choice, a risk that arises in part from the practical fact that bureaucratic decisionmakers (when the law permits) are less likely to tear down a nearly completed project than a barely started project.

Sierra Club v. Marsh, 872 F.2d 497, 500–01 (1st Cir. 1989) (reaffirming the validity of the First Circuit’s holding in *Watt* in the wake of intervening Supreme Court precedent).

There are three ways that illustrate how probabilistic harm may be experienced in the present.²³² First, a risk of harm in the future may generate economic effects in the present. To illustrate, this logic predicts that stocks will not vary in value upon the official announcement of earnings that match the market's preexisting expectations. The stock price would have already incorporated the change in earnings once it became expected.²³³ Along these lines, property values tend to decrease in the face of risk of environmental contamination and harm.²³⁴ It thus is not surprising that the courts have upheld standing on such grounds. Consider, for example, the Supreme Court's decision in *Friends of the Earth, Inc. v. Laidlaw Environmental Services (TOC), Inc.*, upholding a plaintiff environmental organization's standing to pursue an industrial facility's alleged Clean Water Act violations in a civil suit.²³⁵ One of the organization's members "attested that her home, which [was] near [the facility in question], had a lower value than similar homes located farther from the facility, and that she believed the pollutant discharges accounted for some of the discrepancy."²³⁶

232. Beyond the three situations discussed in the text, growing scientific evidence suggests that exposure to toxic chemicals in fact may have a physical effect in the present. See Jamie A. Grodsky, *Genomics and Toxic Torts: Dismantling the Risk-Injury Divide*, 59 STAN. L. REV. 1671, 1704–11 (2007) (describing scientific evidence of present physical changes at the molecular level that could be described as early stages of a disease); Albert C. Lin, *The Unifying Role of Harm in Environmental Law*, 2006 WIS. L. REV. 897, 955–61 (discussing subcellular harm). Incorporation of this scientific knowledge may one day change the way we think about future harm and risk of harm. Grodsky, *supra*, at 1725–26. But cf. Porat & Stein, *supra* note 134, at 234 (critiquing as "artificial" legal arguments that ground liability for future harm on the notion that latent harm is already present or that dread of future harm is already present).

233. See, e.g., Brad M. Barber et al., *The Fraud-on-the-Market Theory and the Indicators of Common Stocks' Efficiency*, 19 J. CORP. L. 285, 294 (1994) (explaining the efficient market hypothesis).

234. See Thomas A. Jackson, *Environmental Contamination and Industrial Real Estate Prices*, 23 J. REAL EST. RES. 179 (2002) (finding environmental contamination leads to reduction in industrial property values before and during remediation); Robert A. Simons & Jesse D. Saginor, *A Meta-Analysis of the Effect of Environmental Contamination and Positive Amenities on Residential Real Estate Values*, 28 J. REAL EST. RES. 71 (2006) (finding that environmental contamination reduces residential property values); see also Thomas M. Carroll et al., *The Economic Impact of a Transient Hazard on Property Values: The 1988 PEPCON Explosion in Henderson, Nevada*, 13 J. REAL EST. FIN. & ECON. 143 (1996) (finding that a property's value is sensitive to mean distance of property from hazard); cf. Alexandra B. Klass & Elizabeth J. Wilson, *Climate Change and Carbon Sequestration: Assessing a Liability Regime for Long-Term Sequestration of Carbon Dioxide*, 58 EMORY L.J. 103, 144 (2008) (noting courts' growing willingness to award "'stigma' damages" for "an adverse impact on the value of a property based on the market's perception that the property poses an environmental risk," and noting that such awards may be made with respect "not only to property that is currently contaminated, but also to property that has a risk of future contamination or property that has been remediated but is still perceived as posing a risk of harm").

235. 528 U.S. 167, 181–85 (2000).

236. *Friends of the Earth*, 528 U.S. at 182–83. Along somewhat similar lines is the Court's reliance on the attestation by another member of the organization that "she and her husband would like to purchase a home near the river but did not intend to do so, in part because of [the] discharges." *Id.* at 182.

Indeed, individuals often act to substitute current economic cost for future risk. Consider the institution of insurance: people who insure against risks pay current dollars as the insurance premium. In return, they will be reimbursed for (at least most of) the costs of the future harm insured against, if such a harm comes to pass. If no such harm ever comes to pass, then the insured will have paid current dollars simply to avoid the risk of a future loss.²³⁷ Indeed, Professor Farber argues that the existence of an insurance market for a loss should be a consideration in determining whether standing should exist to challenge action (or inaction) that might lead to the loss.²³⁸

Second, even if a risk of future harm does not generate current economic effects, it may impose intangible harms and costs. Consider first the possibility of psychic harms. Dean Revesz argues for the use of a lower discount rate for the future chance of dying of cancer.²³⁹ In such cases, the future harm may not bring about a change in current behavior. Nonetheless, such individuals may experience today the dread of contracting, suffering, and dying from the disease in the future.²⁴⁰ Indeed, the source of the dread is the sense (whether true or not) that the result is inevitable and that no change in behavior can make any difference at all. One can say that this sense of dread exacts a current harm on those who suffer from it.

Other intangible harms may also result. Consider, for example, the failure by government to adhere to prescribed procedural requirements in taking an administrative action. As I have discussed above, if one understands the harm suffered by a plaintiff challenging the government action as the government action itself, then the harm lies in the future (and, indeed, court action might not redress the harm since the government could adhere

But see Clapper v. Amnesty Int'l USA, 133 S. Ct. 1138, 1151 (2013) ("[Plaintiffs] cannot manufacture standing merely by inflicting harm on themselves based on their fears of hypothetical future harm that is not certainly impending.").

237. Financial derivatives, like insurance, offer investors the opportunity to hedge risks. *See, e.g.*, Jonathan S. Masur & Jonathan Remy Nash, *The Institutional Dynamics of Transition Relief*, 85 N.Y.U. L. REV. 391, 429–30 (2010).

Markets also sometimes allow litigants effectively to insure against the uncertain outcome of litigation. *See, e.g.*, Lester Brickman, *Contingent Fees Without Contingencies: Hamlet Without the Prince of Denmark?*, 37 UCLA L. REV. 29, 43 (1989) (describing contingency fee arrangements "as a hedge" under which "the client's exposure to loss is limited by the attorney's assumption of the fee risk, while the client's potential gain is also limited by the 'sale' of a percentage of the claim to the attorney"); Jonathan T. Molot, *Litigation Finance: A Market Solution to a Procedural Problem*, 99 GEO. L.J. 65, 96–98 (2010) (describing means by which institutional investors offer companies up-front assets in exchange for assuming risk of litigation).

238. Daniel A. Farber, *Uncertainty as a Basis for Standing*, 33 HOFSTRA L. REV. 1123, 1126–29 (2005).

239. Richard L. Revesz, *Environmental Regulation, Cost-Benefit Analysis, and the Discounting of Human Lives*, 99 COLUM. L. REV. 941 (1999).

240. *See id.* at 972–74; E. Donald Elliott, *The Future of Toxic Torts: Of Chemophobia, Risk as a Compensable Injury and Hybrid Compensation Systems*, 25 HOUS. L. REV. 781, 785–90 (1988) (discussing the dread of "chemophobia"); Lisa Heinzerling & Cameron Powers Hoffman, *Tortious Toxics*, 26 WM. & MARY ENVTL. L. & POL'Y REV. 67, 90 (2001); Lin, *supra* note 232, at 945–54.

to its original action once it corrects any procedural deficiencies). Still, as Justice Breyer noted, there are legitimacy costs to having the government take actions in procedurally invalid ways.²⁴¹ These costs likely will make plaintiffs question the fairness of the legal system.²⁴² Beyond plaintiffs, having the government act in procedurally invalid ways also might decrease significantly the legitimacy of government—through agencies that are seen to have authority to act improperly—and courts—that are seen to be ineffective checks on procedurally invalid agency action—in the eyes of society at large.

Third, a risk of harm in the future may prompt people to change their behavior to their detriment in the present. It is not unreasonable to expect people to alter their current behavior and behavioral patterns in order to minimize their exposure to risky substances or conditions. Once again, the courts have recognized standing on this basis. Consider, again, the Supreme Court's decision in *Friends of the Earth*. In upholding standing, the Court relied on allegations that members of the organization had changed their behavior based on the fear that the violations had contaminated nearby waters.²⁴³ It catalogued factual findings as to how members had, variously, reduced their activities in and near the allegedly affected waterways.²⁴⁴ Many courts of appeals have followed *Friends of the Earth* in finding current changes in behavior sufficient to support standing.²⁴⁵

It is important to emphasize that I offer these examples to support the general consistency of expected value–base standing with existing law, not to suggest that these situations should comprise the universe of cases where standing to achieve a reduction in future harm should be recognized. For example, I do not mean to suggest that standing should exist only where an insurance market against the loss in question exists. Even if demand for a particular type of insurance exists, there may be reasons (for example, insufficient data from past episodes to allow for setting prices appropriately) that preclude the development of a market for that insurance.²⁴⁶ In my view, the

241. See *supra* note 231.

242. See generally TOM R. TYLER, *WHY PEOPLE OBEY THE LAW* (1990).

243. *Friends of the Earth, Inc. v. Laidlaw Envtl. Servs. (TOC), Inc.*, 528 U.S. 167 (2000).

244. *Id.* at 181–83 (detailing how individuals variously no longer engaged in wading, hiking, driving, fishing, camping, swimming, and picnicking in and near the waters).

245. See, e.g., *supra* notes 97–102 and accompanying text.

246. See, e.g., Masur & Nash, *supra* note 237, at 408–26 (describing and evaluating possible obstacles to markets for insurance against regulatory changes); Jonathan R. Nash, Note, *Environmental Law: An Economic Approach to the Availability of Hazardous Waste Insurance*, 1991 ANN. SURV. AM. L. 455, 464–66, 482–93 (discussing the ideal conditions of insurability and explaining why a market for hazardous waste insurance lagged behind demand in the 1980s); see also Sean B. Hecht, *Climate Change and the Transformation of Risk: Insurance Matters*, 55 UCLA L. REV. 1559 (2008) (describing the obstacles to the development of insurance markets to address risks associated with climate change).

question is not whether in fact people pay to avoid future harm but whether they would be willing to do so.²⁴⁷

C. Is Expected Value-Based Standing Desirable?

The question remains whether expected value-based standing is desirable. Ultimately, this is a question for Congress; my focus is on the relationship between the ideas of “injury in fact” and expected value, not on what Congress should do. Nonetheless, it is worth exploring the normative question. I break this question down into two constituent issues: (1) whether expected value-based standing would frustrate the goals of standing doctrine and (2) whether expected value-based standing would open the oft-cited “floodgates of litigation” too wide.

1. Is Expected Value-Based Standing Consistent with the Goals of Standing Doctrine?

As I discuss in greater detail below, the adoption of expected value-based standing will allow more cases to reach the federal courts. Critics may question whether it is in fact desirable for the federal courts to hear many of these cases. (Here my baseline assumption is that the vast majority of these cases will be cases brought against the federal government and thus cases in which, absent expected value-based standing, no judicial forum will be available.²⁴⁸) I think that often the answer to this question is “yes.”²⁴⁹

Perhaps the most commonly cited value that existing standing doctrine is said to further is the restriction of judicial consideration to settings in which there is concrete adversity between the parties. This adversity is said

247. Compare Craig, *supra* note 85, at 189 (citing dissent in *Ayers v. Township of Jackson*, 525 A.2d 287, 321 (N.J. 1987) (Handler, J., concurring in part and dissenting in part)), which argued that the fact that one would have to pay another individual substantial amounts of money for him or her to be willing to tolerate the injuries suffered by toxic tort plaintiffs in future harm cases provides grounds for the plaintiffs to be able to collect damages.

248. There will undoubtedly be some cases that will qualify for expected value-based standing in federal court that could also be brought in state court because the relevant state recognizes probabilistic standing or otherwise has less restrictive standing requirements than the federal courts. Cf. James W. Doggett, Note, “Trickle Down” Constitutional Interpretation: Should Federal Limits on Legislative Conferral of Standing Be Imported into State Constitutional Law?, 108 COLUM. L. REV. 839, 851 (2008) (observing that state standing rules can diverge from federal norms). In such cases, the addition of the federal forum is presumably less meaningful and less normatively desirable. Indeed, to the extent that such cases include issues of federal law, review may be had in the Supreme Court notwithstanding the lack of standing sufficient to support initiating the lawsuit in federal court. See *ASARCO Inc. v. Kadish*, 490 U.S. 605, 618–24 (1989).

I note that, to the extent that a state does not now recognize standing for probabilistic harms, my proposal for expected value-based standing could apply there too.

249. In evaluating the normative desirability of expected value-based standing, I rely on and accept the normative benefits standing is generally said to provide. In doing so, I do not address the merits of these normative assumptions; indeed, many commentators have questioned all of them over the years. Rather, I mean only to evaluate expected value-based standing according to the same metrics by which traditional standing is judged.

to prevent courts from issuing advisory opinions and to ensure that courts decide cases where the parties are truly motivated to present their most persuasive arguments. This is thought to provide some assurance that a court likely will have before it all relevant concerns before it decides the case.²⁵⁰

Standing limitations are also said to further the separation of powers and democratic accountability. The separation of powers argument relies on the notion that the political branches, rather than the courts, should resolve important political debates. Relatedly, democratic accountability emphasizes that the political branches are accountable to the populace; because the courts are not, they ought not lightly interfere with actions taken by the political branches.²⁵¹ Standing is said to achieve these goals by restraining the power of the courts.²⁵²

There are a few reasons to believe that expected value-based standing would not impair the separation of powers and democratic accountability goals of standing law. First, recognizing the power of Congress to authorize causes of action where the harm is grounded in expected value may in many settings be consistent with the constitutional separation-of-powers design.²⁵³ If that is the case, then current jurisprudence inordinately empowers the executive branch at the expense of the legislature by insulating the executive branch from court challenge where the legislature intended that it should be.

Second, cases where probabilistic injury is alleged are precisely those settings where one might reasonably expect the political branches not to function appropriately and for democratic accountability not to spur government into appropriate action. There are some harms that may be so large that, even if the risk of them occurring is comparatively low (or uncertain), it makes sense at least to confront the question of whether to address them today.²⁵⁴ But such cases may feature political failures that make it likely that the political

250. Elliott, *supra* note 17, at 468–74. For criticism, see *id.* at 474–75 and David M. Driesen, *Standing for Nothing: The Paradox of Demanding Concrete Context for Formalist Adjudication*, 89 CORNELL L. REV. 808, 840 (2004).

251. See, e.g., Elliott, *supra* note 17, at 468–74 (collecting authorities).

252. See Elliott, *supra* note 17, at 475–83 (pro-democratic function); see also *id.* at 492–96 (anti-conscription function). Professor Elliott proceeds to argue that existing standing doctrine does a poor job of vindicating these goals. See *id.* at 483–92 (pro-democratic function); *id.* at 497–500 (anti-conscription function). She suggests that standing be largely supplanted by a system of abstention under which a federal court would have the discretion to abstain in cases where the court determines that one or more of these goals would in fact be frustrated by litigation. See *id.* at 510–16. Without passing on the merits of this proposal, I note that—if standing were to one day morph into a system of abstention, my proposal could readily morph as well—courts should be no more inclined to abstain in a case of probabilistic injury than in a case of ordinary injury where the expected value of the injury in the first case equals the actual injury in the second.

253. See Fletcher, *supra* note 14, at 283–90 (arguing that judicial determination of whether there is standing to pursue a new federal cause of action ought to turn on the constitutional provision pursuant to which the statute was enacted and the language of the enacting statute).

254. See Nash, *supra* note 21, at 520 (discussing the failure of current standing doctrine to address such problems).

branches will not confront the issue,²⁵⁵ thus making involvement of the courts imperative if there is to be even a possibility of government action. This is because individuals, including politicians, are likely to suffer from probability neglect.²⁵⁶ In particular, people often fail to appreciate low-probability, high-magnitude events.²⁵⁷ This means that actors in the political branches may not address such issues until the injury is no longer probabilistic—i.e., until it is too late. It also means that democratic accountability is unlikely to impose a significant check on this tendency, since the public at large may be similarly unlikely to recognize the importance of addressing issues of harm when they are “merely” probabilistic. A rational decisionmaker might predict such a government failure in advance and choose to empower private citizens to pursue judicial relief so as to mitigate the problem.

Another reason that expected value-based standing would not undermine the separation of powers is that the existing standing regime does not provide a principled distinction between cases that reach court and cases that do not. As discussed above, harms of positive expected value are economically equivalent to actual harms of the same value.²⁵⁸ If \$60 of expected harm ought to be insufficient for standing purposes, one should also question whether \$60 in actual harm ought to be insufficient. If in the end standing is used to impose some arbitrary line between cases that come to federal court and those that do not, at least that arbitrary line ought to treat cases that allege economically equivalent harms in equivalent ways.

A fourth reason to view expected value-based standing as consistent with the separation-of-powers principle is that expected value-based standing would do nothing to displace other doctrines that further separation-of-powers interests. For example, the political question doctrine²⁵⁹ and the doctrine generally disallowing challenges to government inaction²⁶⁰ would still be available to litigants and courts.²⁶¹

Finally, note that, to the extent that a “probabilistic harm” may ultimately come to pass, the absence of expected value-based standing will affect not whether there is judicial review but rather the timing of that review. The absence of a judicial forum for probabilistic harms means that aggrieved plaintiffs must wait until a harm in fact comes to pass before seeking judicial relief. And there are good reasons to think that this will quite often be normatively undesirable. Ex post relief may not be as effective as ex ante

255. See *id.*

256. See generally Cass R. Sunstein, *Probability Neglect: Emotions, Worst Cases, and Law*, 112 YALE L.J. 61 (2002) (describing how individuals tend to overvalue some risks and undervalue others).

257. Nash, *supra* note 21, at 520; see also Sunstein, *supra* note 256 at 74–76.

258. See *supra* notes 134–135 and accompanying text.

259. See *Allen v. Wright*, 468 U.S. 737, 750 (1984) (describing the political question doctrine as a “constitutional and prudential limit[] to the powers of an unelected, unrepresentative judiciary” (quoting *Vander Jagt v. O’Neill*, 699 F.2d 1166, 1078–79 (D.C. Cir. 1983) (Bork, J., concurring))).

260. See *supra* note 37 and accompanying text.

261. See *supra* text accompanying notes 141–144.

relief, both because the relief is delayed and because the harm that accrues until ex post relief becomes available may be substantial and even irreversible.²⁶²

Professor Stearns argues that standing doctrine offers a different benefit: it protects against savvy litigants manipulating the courts' docket in order to develop precedent selectively.²⁶³ Because of the doctrine of stare decisis, the evolution of law is at least somewhat "path dependent." The first case on an issue to reach the courts may determine the rule governing similar cases for years to come, and yet the choice of which case that is may affect the rule that the courts choose. Standing, then, is important because it restricts litigants' ability to bring cases of their choice before the courts. Requiring cases to develop into full-fledged controversies before they can be heard in court precludes litigants from teeing up legal issues of their choosing for judicial resolution.

I agree that, to the extent that my proposal invites more cases into federal court, it will afford litigants some additional leeway in assembling courts' dockets. Still, I do not think that my proposal will result in so large a change that it will frustrate Professor Stearns's normative goal. First, I observe that, even now, litigants sometimes successfully tee up "test cases" for courts to review.²⁶⁴ Second, the court that has the largest role in establishing precedent that will govern for years to come—the Supreme Court—selects the

262. Indeed, the common law's focus on ex post liability is seen as one of the reasons for the development of the modern administrative state. See, e.g., N. William Hines, *Nor Any Drop to Drink: Public Regulation of Water Quality—Part I: State Pollution Control Programs*, 52 IOWA L. REV. 186, 200 (1966).

263. Maxwell L. Stearns, *Standing Back from the Forest: Justiciability and Social Choice*, 83 CALIF. L. REV. 1309, 1323 n.48 (1995) ("[C]ommentators have failed to identify the reason [b]ehind the general presumption against [ideological] litigation [that standing represents], namely that a contrary rule would enable ideological litigants to manipulate the critically important path of case presentation."); see also Robert J. Pushaw, Jr., *Limiting Article III Standing to "Accidental" Plaintiffs: Lessons from Environmental and Animal Law Cases*, 45 GA. L. REV. 1 (2010) (arguing that standing is best understood to limit court access to plaintiffs who have been injured because of chance events beyond their control); Maxwell L. Stearns, *Standing and Social Choice: Historical Evidence*, 144 U. PA. L. REV. 309, 348–404 (1995) (marshalling historical evidence and case law to support point that standing doctrines prevent manipulation).

264. Cf. *United States v. Baker*, 45 F.3d 837, 840 n.1 (4th Cir. 1995) (noting that, where challenge was brought under one statutory provision but analogous challenge could arise under another, "the parties have announced to this Court that they have agreed by stipulation that the Court's decision in this matter will govern hearings under both statutes," but holding that, "[w]hile our holding herein with respect to hearings conducted under [the first statute] may, because of similarities between that section and [the other provision], bear on, or perhaps even control, analogous claims with respect to hearings under [the second provision], the parties cannot, by virtue of their 'stipulation,' confer jurisdiction on this Court to issue an advisory opinion"); *id.* at 848 (Widener, J., dissenting) ("[T]his is a test case set up by the Judicial Conference of the United States In my opinion, this case is singularly inappropriate as a test case to determine the validity of the use of television as a means of providing to . . . a prisoner . . . the amount of process which he is due.").

cases it will hear.²⁶⁵ While it is conceivable that litigants might team up with a willing Court to tee up particular cases for selection—or that litigants might successfully “read” the current Court composition so as to determine cases that, if teed up, the Court might likely select—it seems that the Court’s discretion to choose its own docket effectively limits litigant freedom in this regard.

Third, I do not think that my proposal would admit so many more cases into federal court such that the concerns that Professor Stearns voices would become substantially greater. Consider first that many circuit court opinions already recognize some form of probabilistic standing.²⁶⁶ To the extent they do, my proposal would not admit any more cases or would admit cases only at the margins that feature harms that are slightly more probabilistic than harms that currently are seen to satisfy standing requirements. Second, as I have discussed, many cases in which expected value-based standing might be alleged are cases in which the probabilistic injury is felt in the present;²⁶⁷ at least some of these cases would be heard in federal court even without resort to expected value-based standing.

Fourth, quite apart from the limited *number* of additional cases that expected value-based standing would admit to federal court, I am of the view that most of those cases that do reach federal court will not be of the sort that raise the concerns of which Professor Stearns speaks. Expanding standing to include cases of probabilistic harm will not empower litigants and wily lawyers freely to bring any and all controversies before the courts. There still will have to be a genuine controversy; the requirement that the risk of future harm have an expected value that is not insubstantial will guarantee this.

Professor Carlson has advanced the benefit of standing doctrine in keeping litigation anthropocentric.²⁶⁸ Without passing judgment on whether this is always normatively desirable,²⁶⁹ I observe that my proposal would do nothing to change the status quo in this regard. Litigants would still have to

265. For an analysis of the politics underlying the Court’s ability to persuade Congress to grant this discretion, see Edward A. Hartnett, *Questioning Certiorari: Some Reflections Seventy-Five Years After the Judges’ Bill*, 100 COLUM. L. REV. 1643 (2000).

266. See *supra* text accompanying notes 85–115 (summarizing cases from the First, Second, Seventh, Ninth, and D.C. Circuits that have accepted some form of probabilistic standing).

267. See *supra* text accompanying notes 232–245.

268. See Ann E. Carlson, *Standing for the Environment*, 45 UCLA L. REV. 931, 995–97 (1998) (arguing that standing rules may force environmental advocates to rethink environmental problems and to express them in terms of how they may affect human beings and that the resulting refocusing of environmental advocacy would benefit courts, the public, and ultimately the environment).

269. But cf. Lin, *supra* note 232, at 935–36 (summarizing authorities who argue that restricting standing to injuries to people will preclude protection of the environment for its own sake); *id.* at 977–83 (arguing that the problem of harm to the environment requires rethinking the anthropocentricity of standing analysis); Cass R. Sunstein, *The Rights of Animals*, 70 U. CHI. L. REV. 387 *passim* (2003) (arguing in favor of at least limited legal rights for animals).

show a positive expected value of harm in order to proceed to court. Thus, litigation anthropocentricity will be preserved. The Supreme Court evidently shares this view: before it upheld standing in *Friends of the Earth*, the Court emphasized that “[t]he relevant showing for purposes of Article III standing . . . is not injury to the environment but injury to the plaintiff.”²⁷⁰

Professor Kontorovich argues that standing is useful because, by limiting cases in which litigants may definitively resolve issues for all possible “victims,” it preserves the ability of private individuals to bargain to efficient resolutions.²⁷¹ As Professor Kontorovich himself recognizes, his arguments are strongest in the context of litigation over constitutional violations and weakest for litigation over statutory and regulatory violations.²⁷² Acceptance of the proposal here would recognize increased congressional power over standing to challenge statutory and regulatory violations. As such, it would have little effect on the balance Professor Kontorovich endorses in the constitutional context.

Finally, I emphasize that my proposal for expected value-based standing is desirable in that it vests Congress with the freedom not to grant expected value-base standing in particular areas, or even at all. My point is simply that the Constitution does not limit Congress’s ability to extend standing to cases where the expected value of the harm is not insubstantial, not that Congress is in any way mandated to do so. Indeed, this approach is consistent with the general canon that advocates construing constitutional grants broadly so as to preserve Congress’s freedom to proceed more narrowly if it chooses.²⁷³

2. Does Expected Value-Based Standing Intolerably Enlarge the Set of Cases as to Which There Is Standing in Federal Court?

One question remains: whether expected value-based standing would intolerably enlarge the set of cases that federal courts must resolve. Indeed, commentators and judges alike often sound cautionary notes about opening the “floodgates of litigation” to the federal courts. Such critics may object to expected value-based standing on this basis.

270. *Friends of the Earth, Inc., v. Laidlaw Env'tl. Servs. (TOC), Inc.*, 528 U.S. 167, 181 (2000).

271. See Eugene Kontorovich, *What Standing Is Good for*, 93 VA. L. REV. 1663, 1675 (2007) (showing that “broad standing to challenge certain types of government action could result in inefficient outcomes because of high transaction costs and the possibility of strategic behavior”).

272. See *id.* at 1720–23.

273. Thus, by way of analogy, the Court has construed the constitutional grant of diversity jurisdiction more broadly than it has its statutory analog. Compare *Strawbridge v. Curtiss*, 7 U.S. (3 Cranch) 267 (1806) (interpreting the statutory diversity grant to require complete diversity), with *State Farm Fire & Cas. Co. v. Tashire*, 386 U.S. 523 (1967) (interpreting the constitutional diversity grant to authorize Congress to confer jurisdiction where the parties are minimally diverse).

My initial response is that I am speaking only of cases in which plaintiffs should be able to claim “injury in fact” and hence have standing under existing law. If Congress believes that expected value-based standing creates too many lawsuits, it can respond by banning suits by those with probabilistic injuries.

There is also an empirical question involving the extent to which recognition of expected value-based standing would enlarge the universe of cases federal courts would hear. The number of cases that expected value-based standing would allow into federal court is not as large as one at first might think. First, as I have discussed above, many cases that would meet the expected value-based standing threshold unambiguously meet the traditional requirements for standing (insofar as many aspects of extant standing doctrine implicitly incorporate elements of expected value).²⁷⁴

Second, it is conceivable that discounting might keep cases with even substantial future harms from qualifying for expected value-based standing.²⁷⁵ The notion of discounting future harm is entirely consistent with my proposal. Indeed, the question of whether to discount is in some sense entirely orthogonal to the question with which I grapple here—as is the question of (assuming discounting is appropriate) what discount rate should be used. It is quite possible that, even if a future harm is sizeable, the harm after discounting would not exceed a *de minimis* level.

At the same time, I am careful not to overstate the point. Reliance on discounting is not enough to respond to the possibility of opening the floodgates of litigation. For one thing, part of the reason that expected value-based standing is appropriate is exactly that the risk of future harm may have effects today.²⁷⁶ In such cases, discounting has no role (or in some sense has already been taken into account). For another, there are those who argue that at least some future harms should, in at least some cases, be discounted at a reduced rate or not be subject to discounting at all.²⁷⁷ In short, even if discounting may continue to keep many cases out of federal court, the fact remains that expected value-based standing will invite some additional cases into federal court even with discounting.

274. See *supra* text accompanying notes 209–230.

275. Cf. Revesz, *supra* note 239, at 998 (“Placing a value of life of \$5 million, in constant dollars, [and using a 5% discount rate] the maximum current amount that we could justify spending now to avert the destruction of the human race in 500 years would be \$30 million. (At the OMB rate of 7%, this amount would be only about \$10!)”).

276. See *supra* text accompanying notes 244–245.

277. See, e.g., Douglas A. Kysar, *Discounting . . . on Stilts*, 74 U. CHI. L. REV. 119 (2007) (arguing against discounting across generations); Revesz, *supra* note 239, at 974–81 (arguing that a lower than usual discount rate should be used to discount certain future risks of death over the course of an individual’s life); *id.* at 996–1016 (arguing that logic does mandate the use of discounting in the intergenerational context and suggesting instead an appeal to a moral theory of intergenerational obligation). But see Sunstein & Rowell, *supra* note 4 (arguing that elimination of discounting is not the proper tool with which to vindicate concerns of intergenerational equity); W. Kip Viscusi, *Rational Discounting for Regulatory Analysis*, 74 U. CHI. L. REV. 209 (2007) (arguing in favor of intergenerational discounting).

A third reason that I do not expect the adoption of expected value-based standing to overwhelm the federal courts is that the fact that a case meets the requirements for standing does not mean that it will necessarily proceed to trial. As I have argued above, the persisting judicial rules that restrict cases that raise generalized harms and that preclude review of agency inaction may still serve to keep many cases out of the federal courts.²⁷⁸

CONCLUSION

My principal claim is that the law of standing has ignored the concept of expected value. If people face a 1-in-100,000 risk of mortality, they face a loss of expected value of \$60—and a loss of \$60 is surely sufficient to count as an “injury in fact.” In a number of cases, courts have held that the injury is too “speculative” to satisfy Article III standing requirements. But a risk that is under 50%, or 30%, or 20%, or 10%, or even 1%, should qualify as an “injury in fact” so long as the outcome is bad enough. If a loss of \$100 counts as an “injury in fact,” then a small risk of a terrible outcome should also count.

While the Supreme Court has failed to recognize explicitly the concepts of expected value and probabilistic harm, some of its decisions show an implicit understanding of these concepts. In key cases, lower courts have been far clearer on the underlying questions. But the courts remain divided, with some decisions suggesting that harms must be “more probable than not” or that there must be a “substantial probability” that they will come to fruition.

These decisions are built on a serious confusion. They fail to see that the underlying statutes are typically designed to reduce risks and to alter probabilities, not necessarily to ensure different outcomes in particular cases. Under the “injury-in-fact” requirement, it is not enough to say that an injury is “speculative” and to deny standing for that reason. A positive non-de minimis expected value should be sufficient to support standing.²⁷⁹

278. See *supra* text accompanying notes 174–177.

279. This Article has argued that the asymmetry in treatment between cases of probabilistic harms and nonprobabilistic harms be eliminated. There are two ways that this can be accomplished. One possibility, highlighted in the text, is that a positive non-de minimis expected value should be sufficient to support standing. A second possibility is that low-value (but greater than de minimis) expected values should not be enough to support standing but that existing doctrine should be amended to conform to the treatment of nonprobabilistic harms; that is, low-value injuries should similarly be seen to fall below the standing threshold.

